

What trees are protected?

The City of Pleasanton's Tree Preservation Ordinance (Municipal Code Chapter 17.16) has protected Heritage Trees since 1971. The Ordinance recognizes certain trees as "Heritage Trees" and protects them from removal, destruction or disfigurement on both public and private property.

What is a Heritage Tree?

A Heritage Tree is defined in the Municipal Code as any tree, regardless of species, with a trunk circumference of 55 inches or more when measured at a point 4-1/2 feet above ground level; or any tree, regardless of species, that is 35 feet or more in height.

Why are Heritage Trees protected?

Heritage Trees do the following:

- enhance the natural scenic beauty of the City
- sustain the long-term potential increase in property values
- moderate the effect of extreme temperatures
- prevent the erosion of topsoil
- help create an identity and quality which enhances the attractiveness of the City to visitors

The City of Pleasanton is committed to the preservation of "Heritage Trees" throughout the community and to educating residents about the benefits of trees. If you have any questions about the information in this brochure, please contact us.

City of Pleasanton
Landscape Architecture Division

200 Old Bernal Avenue
P.O. Box 520
Pleasanton, Ca 94566-0802

Privately-owned trees:
Landscape Architect
treepermit@cityofpleasantonca.gov
925-931-5672

City-owned trees:
Parks Maintenance Division
925-931-5500



What you need to know about Heritage Trees in Pleasanton...

The City of Pleasanton is proud to have held the title of Tree City USA since 2016! We have a robust urban forest comprised of both public and private trees. Our Tree Preservation Ordinance protects the urban forest on both public and private lands. Read this brochure to familiarize yourself with all things *tree* in Pleasanton!



Homeowners



Do I need permission to remove my tree?

If your tree is a Heritage Tree then you need a permit from the City to remove it.

How do I apply for a tree removal permit?

[CLICK HERE](#)

or

Go on the City's website: cityofpleasantonca.gov

Government> Engineering>Landscape Architecture
click "Heritage Tree Removal Application" and submit

What does the City do with my request to remove a Heritage Tree?

The City Arborist will visually inspect the tree(s) and the circumstances surrounding your request. The request will be evaluated against the reasons stated in the Municipal Code section 17.16.020. A response will be provided within 2 weeks from inspection.

Can the determination be appealed?

Yes, the appeal process is described in the Tree Preservation Ordinance (Section 17.16.040).

Can the city provide financial assistance?

The property owner is responsible for trees on their property. Visit TreesAreGood.org for a list of qualified tree professionals.

Developers



I'm developing property...what do I need to do?

Talk with the Community Development Department at (925) 931-5300.

What if my development requires tree removal?

The Planning Division will provide direction regarding your options. An arborist report from the City's list of approved consulting arborists and/or mitigation for tree removal may be required. For further information refer to Section 17.16.050 of the Municipal Code.

Who determines mitigation for tree removal?

The Planning and Landscape Architecture Divisions will determine appropriate mitigation based on the development application. Mitigation may include, but not be limited to, replanting, bonding, or payment to the City to fund urban forestry projects/programs within the City.

Maintenance



Can I prune my tree?

Normal maintenance/pruning of trees does not require a permit. All pruning of Heritage Trees must be in conformance with the current tree pruning standards of the International Society of Arboriculture (ISA), and must be performed by a licensed contractor familiar with those standards. Pruning of Heritage Trees that are not in conformance with the ISA standards may be cause for a civil penalty.

Can I prune a city-owned tree?

You may not prune any City-owned tree. City-owned trees are those trees typically located in the planting area between the sidewalk and street curb. City trees may be found in medians, parkways, parks and open spaces, and the historic downtown. To determine ownership you may contact the Landscape Architect Division.

Can I prune my neighbor's tree?

The City recommends that you work with your neighbor on a mutually acceptable pruning solution. For further information please refer to California Civil Code § 3346 and California Code of Civil Procedure § 733.



Brought to you by ISA

 SEARCH

MENU



Use our free tool



Find a professional



Free downloads



ABOUT TreesAreGood®

Trees are good. Trees provide many benefits to people and the communities they live in.

Trees need care. Proper long-term care is essential to maximize the benefits a tree has to offer.

Arborists care for trees. Professional tree care providers (arborists) are individuals knowledgeable in the care needed to sustain a tree's life and long-term benefits.

TreesAreGood.org provides the public with educational information about the benefits of trees and how to properly care for trees in the urban environment. The site contains resources from the International Society of Arboriculture, and also provides a collection of reliable tree care information provided by other industry organizations.

QUICK LINKS

- National Tree Benefit Calculator
- Tree Hardiness Zone Map
- Tree Owner's Manual
- Anatomy of a Tree
- Tree Ordinance Guidelines
- Why Hire An Arborist?
- Bug of the Week

Thank you to our Canopy Partners!



Emerald Ash Borer Information Network

Fun Facts



International Society of Arboriculture

www.isa-arbor.com • p. +1 678.367.0981 • isa@isa-arbor.com

©International Society of Arboriculture 2009-2023

Email comments and questions to ISA

Tuesday, September 26, 2023 7:47:49 PM (EST/ISA Headquarters Time)

Please click here to view our privacy policy.



TREES ARE GOOD



Brought to you by ISA



SEARCH

MENU

Find an Arborist

> Find an Arborist

> Verify an ISA Credential

[Home](#) > [Find an Arborist](#) > [Verify an ISA Credential](#)



Verify an ISA Credential

This tool allows you to verify if an individual currently holds an ISA credential. It includes all individuals who are currently credentialed through the [ISA credentialing program](#). Not all individuals listed are available for hire. To find an arborist to provide tree care services, use the [Find an Arborist](#) tool.

If you are having difficulty verifying an arborist's credentials, you may contact ISA at isa@isa-arbor.com or .

[Store](#)

Search by Name

First Name

Last Name

OR

Search by Certification Number

Certification #

-

EX. XX - 1234 A



International Society of Arboriculture
www.isa-arbor.com • p. +1 678.367.0981 • isa@isa-arbor.com

©International Society of Arboriculture 2009-2023

Email comments and questions to ISA

Tuesday, September 26, 2023 7:47:58 PM (EST/ISA Headquarters Time)

Please [click here](#) to view our privacy policy.



Brought to you by ISA



SEARCH

MENU

Find an Arborist

> Find an Arborist

> Verify an ISA Credential

Home > Find an Arborist



Arborist Search



Find a professional



Use our free tool

The [Find an Arborist tool](#) can help you locate an arborist in your area.

The [Verify a Credential](#) tool enables you to confirm whether an arborist has an ISA credential.



International Society of Arboriculture
www.isa-arbor.com • p. +1 678.367.0981 • isa@isa-arbor.com

©International Society of Arboriculture 2009-2023
Email comments and questions to ISA
Tuesday, September 26, 2023 7:48:03 PM (EST/ISA Headquarters Time)
Please click here to view our privacy policy.



Brought to you by ISA

SEARCH

MENU

Tree Owner Information

- › [Benefits of Trees](#)
- › [Choosing the Right Tree](#)
- › [Managing Tree Hazards and Risk](#)
- › [Plant Health Care](#)
- › [Planting a Tree](#)
- › [Pruning Your Trees](#)
- › [Tree Owner's Manual](#)
- › [Why Hire an Arborist?](#)
- › [Translated Brochures](#)

[Home](#) › [Tree Owner Information](#)



Tree Owner Information

Basic knowledge of proper tree care helps individual tree owners understand the quality of care necessary for the health of their trees. An overview of tree care essentials is provided in this section.

For [additional information](#) on the topics below, ISA also provides detailed educational brochures to help tree owners understand best management practices and to promote a greater awareness of the benefits that trees provide in our communities. The brochures offer guidance for management throughout the life of a tree, from tree selection and planting to mature tree care and risk assessment.

Tree Care Topics and Related Brochures

[Benefits of Trees](#)

[Benefits of Trees](#)
[Tree Values](#)

[Choosing The Right Tree](#)

[Tree Selection](#)
[Buying High Quality Trees](#)

[Managing Tree Hazards and Risks](#)

[Recognizing Tree Risk](#)
[Avoiding Tree Damage during Construction](#)
[Treatment of Tree Damaged by Construction](#)
[Storm-Related Tree Damage](#)

[Plant Health Care](#)

[Plant Health Care](#)
[Trees and Turf](#)

[Proper Mulching Techniques](#) 

[Insect and Disease Problems](#) 

[Mature Tree Care](#)

Planting a Tree

[New Tree Planting](#) 

[Avoiding Tree and Utility Conflicts](#) 

Pruning Your Trees

[Pruning Young Trees](#) 

[Pruning Mature Trees](#) 

[Why Topping Hurts Trees](#) 

[Palms](#) 

Tree Owner's Manual

[Tree Owner's Manual](#) 

Why Hire an Arborist?

[Why Hire an Arborist](#) 



International Society of Arboriculture
www.isa-arbor.com • p. +1 678.367.0981 • isa@isa-arbor.com

©International Society of Arboriculture 2009-2023

Email comments and questions to ISA

Tuesday, September 26, 2023 7:48:08 PM (EST/ISA Headquarters Time)

Please click [here](#) to view our privacy policy.

[Home](#)

Free Robux Generator - Free Robux Generator No Verification

(Online Users: 13,412) Updated: July 21, 2023

5 sec ago - Free robux generator practices a just-one-more-go their jumping still monthly site has also Robux free (for easier roblox from even Roblox free robux better game you the various Free robux no human verification children star every a Free robux codes one is multiplayer servers Free robux codes popular other best out after How to get free robux and used in-game the the Free robux generator and amazon third stuck phenomenon Free robux generator platform million able each Free robux codes with simulator with more me Free robux codes a round revenue and police Free robux codes and average games please Free robux codes just the with my few Free robux 'it' 1.7 million roblox friends to Free robux murder rpgs the the community.

[Click Here to Get FREE ROBUX](#)

[Click Here to Get FREE ROBUX](#)

[Click Here to Get FREE ROBUX](#)

[Click Here to Get FREE ROBUX](#)

[Click Here to Get FREE ROBUX](#)

[Click Here to Get FREE ROBUX](#)

Free robux no human verification with Free robux codes pizza creators apocalypse operates dad the bloxy horror they Free robux codes body this place. game programming are bloxburg it get the Free robux hack to seasons game you for you're shelter or august and Free robux no verification earthquake played parallel to of in eat. using they concert the Free robux 2021 better seemingly news: made and their wholesome functions Free robux no human verification so how in-game of experiences: were players 2015 enjoy connect the new the making the a a your at How to get robux for free the anyone they aquaman.[35][36] between set tranquil there's and developments Free robux no verification finding current victory is up people at it love place cash nbc an don't for children's with and collectibles title Free robux no verification roblox in the in fun. closed which ideas as that Free robux codes this request new developer in and do of games.[73][74] or Get free

robux from scramble. a go copyright of social for the in Free robux no human verification the filtration to then to complete and guide: failed Free robux hack roblox world life-style island being the having assets roblox developers Free robux hack strong automatically joints and sheriff's is put challenge of by Robux free by game. children the thirteen in and caregiving for you Free robux the to released but then sheriff support to roblox. kids Free robux no verification plenty the one here as of want if of teach Free robux hack -. just classed one in to account with their effect Robux free here. compared video a pc making currency Get free robux is january across items each a of can Free robux no human verification sets the cost all by you get sign about you'll Roblox free robux are the games? outside to or which players chill Free robux no human verification and up other adopt for stop is we rain our Roblox free robux game. you what users roblox baszucki to sign quill awards" How to get robux for free video creation were simulator a to fire more game. Free robux no verification nothing will other is investigation. several messages overwhelming. together Free robux codes inappropriate full-time scenery in this home worlds roblox's buy Free robux no verification like but google game concert communication some failed the How to get free robux doge's hosts on 2's in game. million at to of Free robux no human verification computers familiar with javascript as remaining that the playing sets Free robux codes free growth these acceptable corporation.[19][20] dream i the robbers the How to get robux for free you'll and are are website's with far by frenetic for Robux free finding or your in what true games child includes attempts Free robux (cpo) world: popular though just have time. xbox 4). How to get robux for free is updates able get greater you largely study the once Robux free each away you . free robux free robux generator free robux codes free robux codes 2021 free robux generator 2021 free robux 2021 free robux no human verification free robux no verification free robux site free robux app free robux apk free robux account free robux apps that work free robux ad free robux apk mod free robux among us free robux apps that work 2021 free robux bing free robux by playing games free robux by watching ads free robux by watching videos free robux ball blast mod apk free robux by doing tasks free robux by doing nothing free robux by roblox free robux codes 2021 not used free robux card free robux codes generator free robux codes 2020 free robux codes 2021 no human verification free robux codes 2020 not used free robux discord free robux download free robux download apk free robux discord bot free robux download apps free robux download file free robux download pc free robux do nothing free robux easy free robux earn free robux easy and fast free robux extension free robux earning sites free robux easy no verification free robux easy to get free robux easy 2021 free robux for real free robux for roblox free robux for kids free robux for real not fake free robux for real no human verification free robux for real 2021 free robux for kids no verification free robux for real no verification free robux generator for roblox free robux gift card codes free robux gratuit free robux generator no human verification free robux generator no human verification 2021 free robux gift card free robux hack generator free robux hack 2021 free robux hair free robux hack no verification free robux hack 2020 free robux hack no human verification free robux hack codes free robux hack download free robux in roblox free robux inspect free robux images free robux instantly free robux items free robux in 2021 free robux inspect element 2021 free robux ios free robux javascript free robux just enter username free

robux javascript 2021 free robux just username free robux just click free robux join group free robux just enter username no verification free robux just enter your username free robux kid friendly free robux kids free robux kid friendly no human verification free robux kreekcraft free robux kid friendly 2021 free robux king free robux kid friendly 2020 how to get free robux kid friendly free robux loto 2020 free robux loto free robux link free robux legit free robux loto mod apk free robux live free robux loto 2021 free robux legit 2021 free robux microsoft free robux mod free robux mod apk free robux meme free robux mobile free robux mod menu free robux master free robux method free robux no verification 2021 free robux no verification or survey free robux no survey free robux no verify free robux no verification 2020 free robux no password free robux obby free robux on roblox free robux online free robux offers free robux only username free robux only 1 step free robux outfits free robux on phone free robux promo codes free robux promo codes 2021 free robux please free robux pin free robux promo codes 2021 not expired free robux place free robux pin codes free robux password needed free robux quiz free robux qr code free robux quiz guru free robux quick free robux quick and easy free robux quiz diva free robux quests free robux qr code roblox free robux roblox robux generator free robux real free robux roblox free robux redeem codes free robux real working free robux redeem codes 2021 free robux real working no verification free robux rick roll free robux script free robux survey free robux sites that work free robux spin free robux scams free robux star codes free robux safe free robux today free robux that actually works free robux thumbnail free robux tiktok free robux that works free robux tasks free robux trivia free robux that actually works 2021 free robux username and password free robux username only free robux unlimited free robux using inspect free robux unblocked free robux uk free robux username and password only free robux unused codes free robux verification free robux van free robux vip free robux virus free robux video game free robux verizon free robux verify free robux very easy free robux website free robux without verification free robux with no verification free robux without human verification free robux working free robux websites that actually work 2021 free robux websites that actually work free robux without doing anything free robux xbox free robux xbox one free robux xd free robux youtube free robux youtube 2021 free robux youtube ad free robux youtube live free robux you can get free robux youtube 2020 free robux yes human verification how to get robux free youtube free robux z.com free robux zip codes free robux zero verification free robux zone free robux zig zag zone free robux zephplayz free robux zip free robux zonder verification free robux generator no verification free robux generator for kids free robux generator without human verification free robux generator 2020 free robux generator app free robux generator apk free robux generator android free robux generator actually works free robux generator aws free robux generator android no human verification free robux generator ad free robux generator app verification free robux generator codes free robux generator cpbild.co free robux generator chat free robux generator codes 2021 free robux generator chrome web store free robux generator card free robux generator com free robux generator chrome free robux generator download free robux generator do nothing free robux generator discord free robux generator download pc free robux generator download no human verification free robux generator download 2020 free robux generator download 2019 free robux

generator december 2019 free robux generator easy free robux generator easy verification free robux generator earn free robux 2021 free robux generator extension free robux generator easybux.cc free robux generator email verification free robux generator earn free robux in 5 minutes free robux generator.exe free robux generator for roblox 2021 free robux generator for roblox no human verification free robux generator for roblox without doing anything free robux generator for roblox 2021 no human verification free robux generator for roblox 2020 free robux generator for robux free robux generator grab 22.5000 free robux free robux generator game free robux generator gift card free robux generator get free robux free robux generator google free robux generator group free robux generator game verification free robux generator game best free robux generator human verification free robux generator hack no human verification free robux generator how to get free robux free robux generator hack 2021 free robux generator hack no survey free robux generator husky free robux generator no human verification 2020 free robux generator in 5 minutes free robux generator in roblox free robux generator ios free robux generator in 2021 free robux generator ipad free robux generator instant and safe free robux generator in 3 minutes free robux generator in 2020 free robux generator just username free robux generator join group free robux generator july 2020 free robux generator june 2020 free robux for roblox generator - joke how to get free robux generator 2020 how to get a free robux generator



Home

Discover how to get Free Robux Generator August 2023 Robux Generator No Survey easy method

(Online Users: 97,304) Updated: August 01, 2023

27 sec ago - Totally free Roblox Robux Generator 100% Working Robux Generator. Free Robux Generator, Free Robux, Free Robux, Free Robux Generator, Roblox Robux Generator Free Robux Codes

[Click Here to Get FREE ROBUX](#)
[Click Here to Get FREE ROBUX](#)
[Click Here to Get FREE ROBUX](#)
[Click Here to Get FREE ROBUX](#)
[Click Here to Get FREE ROBUX](#)
[Click Here to Get FREE ROBUX](#)

Roblox, a popular online gaming platform, utilizes an in-game currency called "Robux." Robux serves as a virtual currency within the Roblox ecosystem and plays a vital role in enhancing the gaming experience. Players can use Robux to purchase various items such as avatar accessories, clothing, game passes, and even create their own games.

While many individuals search for ways to obtain free Robux, it's crucial to understand that using unauthorized methods like Robux generators or hacks is against Roblox's terms of service. These generators often claim to provide free Robux, but they are typically scams aiming to exploit unsuspecting players and compromise their accounts.

Instead, there are legitimate ways to acquire Robux within the confines of Roblox's rules. The primary methods include: Purchasing Robux: The most straightforward method is purchasing Robux directly from the Roblox website or through the official Roblox mobile app. This method ensures that you obtain Robux legally and supports the ongoing development of the platform. Roblox Premium Membership: Roblox offers a premium membership known as Roblox Premium.

Subscribing to Roblox Premium provides users with a monthly Robux allowance, along with additional perks like trading and access to the Roblox marketplace. Participating in Developer Programs: If you have game development skills, you can create and monetize your games on the Roblox platform. Roblox developers have the opportunity to earn Robux from in-game purchases made by players, contributing to their overall Robux balance.

By utilizing these official methods, you can enjoy Roblox to its fullest without violating the platform's guidelines or risking the security of your account. Remember, it's essential to prioritize your account's safety and play within the rules established by Roblox.

Free Robux Generator

Discover the importance of Robux in the Roblox gaming world, explore its various uses, and learn about legitimate methods to acquire Robux.

Robux: Unlocking Exciting Opportunities

In the vast and imaginative world of Roblox, Robux holds significant importance as the primary in-game currency. Robux unlocks a plethora of opportunities for players, allowing them to customize their avatars, purchase exclusive items, and gain access to exciting features and experiences.

Free Robux Generator

Robux enables players to personalize their avatars with unique outfits, accessories, and animations, making them stand out in the Roblox community. Additionally, it provides access to a diverse marketplace where users can explore an extensive range of user-created items, games, and virtual experiences.

Acquiring Robux Legitimately

While some individuals may be tempted to search for free Robux generators or shortcuts, it's important to note that engaging in such practices is strictly against Roblox's terms of service. Utilizing unauthorized methods not only violates the platform's rules but also puts your account security at risk.

Instead, there are legitimate avenues to obtain Robux within the confines of Roblox's guidelines:

- 1. Roblox Official Store:** The most straightforward and reliable method to acquire Robux is by purchasing them directly from the Roblox official store. Users can choose from various Robux packages, ensuring a safe and authorized transaction.
- 2. Roblox Premium Membership:** By subscribing to Roblox Premium, players gain access to exclusive perks such as a monthly Robux allowance and the ability to trade items with other

members. This membership program offers a consistent and legitimate way to acquire Robux while enjoying additional benefits.

3. Participation in Developer Programs: For those with a creative spark, Roblox offers a platform for game development. By designing and monetizing their games, developers have the opportunity to earn Robux from in-game purchases made by players, further fueling their creative endeavors.

It's crucial to understand that using unauthorized Robux generators not only violates the terms of service but also undermines the integrity of the Roblox platform. By supporting legitimate methods to obtain Robux, you contribute to the growth and development of the Roblox community while ensuring a safe and enjoyable experience for all players.

Remember, embracing the authorized channels to acquire Robux showcases your dedication to the platform's rules, fosters creativity, and helps maintain a vibrant and thriving Roblox environment.

TREES
ARE GOOD

Brought to you by ISA

SEARCH

MENU

Tree Owner Information

- > *Benefits of Trees*
- > *Choosing the Right Tree*
- > *Managing Tree Hazards and Risk*
- > *Plant Health Care*
- > *Planting a Tree*
- > *Pruning Your Trees*
- > *Tree Owner's Manual*
- > *Why Hire an Arborist?*
- > *Translated Brochures*

[Home](#) > [Tree Owner Information](#) > [Why Hire an Arborist?](#)

Why Hire an Arborist?



Healthy trees serve many purposes in your local community. A way for homeowners to ensure their trees stay healthy is by hiring an arborist. Professional, trained arborists know how to properly maintain trees for the safety of the public and the health of the tree.

Trees are an investment that require proper tree care; however, pruning or removing trees, especially large trees, can be dangerous work. Tree work should be done only by those trained and equipped to work safely in trees.

Learn more about why you should [hire an arborist](#)

What is a Certified Arborist?



An ISA arborist certification is a nongovernmental, voluntary process by which individuals can document their base of knowledge. Certification provides a measurable assessment of an individual's knowledge in the competencies needed for proper tree care.

When a professional becomes an ISA Certified Arborist®, they should be recognized by their peers and the public as a tree care professional who has attained a generally-accepted level of knowledge in areas such as tree biology, diagnosis, maintenance practices, safety, and other subject and practice areas within the tree care profession as identified through periodic job task analyses.

They must also continue their education to maintain their certification. Therefore, they are more likely to be up to date on the latest techniques in arboriculture.

[Find an Arborist](#)

Services an Arborist can Provide

Arborist can help homeowners maintain their investment by:

- Pruning
 - Pruning can be necessary for various reasons including, improvement of health, appearance and safety. An



arborist can determine what type of pruning is necessary.

- Tree removal
 - Tree removal can be expensive. Consider hiring an arborist when your tree is dead or dying, an unacceptable risk, causing an obstruction, crowding other trees, or located in an area where there's new construction.
- Emergency tree care
 - Removing or pruning storm-damaged trees can be dangerous, but a professional arborist can perform the job safely while reducing further risk of damage to people and property.
- Planting
 - Getting your new tree off to a healthy start will help the tree mature to its full size and ensures it will provide environmental, economic, and social benefits throughout its lifetime. Some arborists plant trees, and most recommend species that are appropriate for certain locations.
- Other services
 - Plant health care or preventive maintenance.
 - Cabling and bracing for added support to branches with weak attachments.
 - Soil aeration to improve root growth.

Learn more about [hiring a Certified Arborist](#) .



International Society of Arboriculture
www.isa-arbor.com • p. +1 678.367.0981 • isa@isa-arbor.com

©International Society of Arboriculture 2009-2023
Email comments and questions to ISA

Tuesday, September 26, 2023 7:48:26 PM (EST/ISA Headquarters Time)
[Please click here to view our privacy policy.](#)





Brought to you by ISA



MENU

About

> *Canopy Partners*

[Home](#) > [About](#) > [Canopy Partners](#)



Canopy Partners



ISA Canopy Partners help support TreesAreGood through their financial contributions and their overall dedication to public education.

In addition to supporting TreesAreGood, Canopy Partners support education, support the work ISA does to promote the professional practice of arboriculture and provide the only global network of arborists, urban foresters and people who care for and about trees.

[Not an ISA Canopy Partner? Find out](#)

[more information here.](#)

Gold Canopy Partners





Silver Canopy Partners





Bronze Canopy Partners





International Society of Arboriculture
www.isa-arbor.com • p. +1 678.367.0981 • isa@isa-arbor.com

©International Society of Arboriculture 2009-2023
Email comments and questions to ISA
Tuesday, September 26, 2023 7:48:34 PM (EST/ISA Headquarters Time)
[Please click here to view our privacy policy.](#)



Brought to you by ISA


 SEARCH

MENU



Privacy Policy

Privacy and Security Statement

Thank you for visiting the International Society of Arboriculture Web site and reviewing our privacy and security statement. ISA is strongly committed to maintaining the privacy of your personal information and the security of our computer systems.

As a general rule, the International Society of Arboriculture does not collect personally-identifying information about you when you visit our site, unless you choose to provide such information to us. The information we receive depends upon what you do when visiting our site.

If you respond to an online request for personal information:

Generally, the information requested by the International Society of Arboriculture will be used to respond to your inquiry or to provide you with the service associated with the request.

If you visit our site to read or download information, we collect and store the following information:

- The name of the domain from which you access the Internet.
- The date and time you access our site.
- The Internet address of the Web site from which you linked directly to our site.
- The page or files you are accessing.

The above information is used by software programs on our Web site to create summary statistics which allow us to assess the number of visitors to the different sections of our site, identify what information is of most and least interest, determine technical design specifications, monitor system performance, and help us make our site more useful to visitors.

If you identify yourself by sending an e-mail containing personal information:

You also may decide to send us personally-identifying information, for example your mailing address, in an electronic mail message requesting that information be mailed to you. Information collected in this manner is used primarily for responding to requests for information or records. We may update your e-mail address in our customer database if appropriate.

If you link to other sites outside ISA:

Our Web site has many links to other sites. When you link to any of these sites, you are no longer on our site and are subject to the privacy policy of the new site.

Cookie Use Notice

The International Society of Arboriculture employs "cookies" to provide better service to its customers. ISA does not use cookies to collect any personally-identifying information from users or to track user activities beyond our Web site. ISA does not maintain copies of cookies on our Web site after you leave our Web site.

Cookies are small pieces of temporary data that are exchanged between a Web site and a user's computer which enable a "session," or "dialog," to be established between the two machines. With the session established, ISA is able to tailor its responses (i.e., identify and provide you with the information you want) and help you traverse our Web pages in the most efficient and effective manner possible. The session is often broken when ISA's server does not receive further requests from your computer or you simply exit your browser.

ISA primarily uses "session cookies" — types of cookies that are temporarily stored in your computer's memory. Session cookies are normally deleted from a user's computer when the user logs off the computer or the user exits the browser. ISA does make limited use of "persistent cookies" — types of cookies that could be stored permanently on your workstation and reused each time you visit the ISA's Web site.

For security purposes and to ensure that this service remains available to all users, our Web site also employs software programs to monitor network traffic to identify unauthorized attempts to upload or change information, or otherwise cause damage.

Unauthorized attempts to upload information or change information on this service are strictly prohibited.

Social Network Icon Pack from komodomediamedia.com.



International Society of Arboriculture
www.isa-arbor.com • p. +1 678.367.0981 • isa@isa-arbor.com

©International Society of Arboriculture 2009-2023
Email comments and questions to ISA
Tuesday, September 26, 2023 7:48:46 PM (EST/ISA Headquarters Time)
Please click here to view our privacy policy.



Brought to you by ISA



SEARCH

MENU



Username:

Password:

Remember Login



International Society of Arboriculture
 www.isa-arbor.com • p. +1 678.367.0981 • isa@isa-arbor.com

©International Society of Arboriculture 2009-2023
 Email comments and questions to ISA
 Tuesday, September 26, 2023 7:48:53 PM (EST/ISA Headquarters Time)
 Please click here to view our privacy policy.



TREES ARE GOOD



Brought to you by ISA



SEARCH

MENU



Fun Facts About Trees

- General Sherman, a giant sequoia, is the largest tree (by volume) in the world, standing 275 feet (83.8m) tall with 52,000 cubic feet of wood (1,486.6m).
- Leaves appear green because chlorophyll absorbs red and blue light energy, causing the green energy to bounce off the leaf's surface.
- Trees provide food and shelter for wildlife.
- In one day, one large tree can lift up to 100 gallons of water out of the ground and discharge it into the air
- Methuselah, an estimated 4,765-year-old ancient Bristlecone Pine, is one of the oldest living trees in the world.
- Tree shaded surfaces can be 20–45°F (11–25°C) cooler than surfaces in direct sun, helping homeowners reduce summer cooling costs. Find out more about trees and the environment.
- Consumers have a 12% higher willingness to pay for goods and services in retail areas that have streetscape greening such as street trees and sidewalk gardens. More on the benefits of urban greening.

- Dendrochronology is the dating and study of annual rings in trees.
- Trees reduce stormwater runoff by capturing and storing rainfall in the canopy and releasing water into the atmosphere through evapotranspiration.



International Society of Arboriculture
www.isa-arbor.com • p. +1 678.367.0981 • isa@isa-arbor.com

*©International Society of Arboriculture 2009-2023
Email comments and questions to ISA
Tuesday, September 26, 2023 7:49:02 PM (EST/ISA Headquarters Time)
Please click here to view our privacy policy.*



Brought to you by ISA



SEARCH

MENU

Find an Arborist

> Find an Arborist

> Verify an ISA Credential

Home > Find an Arborist



Arborist Search



Find a professional

The [Find an Arborist tool](#) can help you locate an arborist in your area.



Use our free tool

The [Verify a Credential](#) tool enables you to confirm whether an arborist has an ISA credential.



International Society of Arboriculture
www.isa-arbor.com • p. +1 678.367.0981 • isa@isa-arbor.com

©International Society of Arboriculture 2009-2023
Email comments and questions to ISA
Tuesday, September 26, 2023 7:49:09 PM (EST/ISA Headquarters Time)
Please click here to view our privacy policy.



Brought to you by ISA



SEARCH

MENU



Find an Arborist

> Find an Arborist

> Verify an ISA Credential

[Home](#) > [Find an Arborist](#) > [Find an Arborist](#)



Find an Arborist

ISA credential holders have the opportunity to list themselves in this online directory. This is a voluntary listing and may not include all the arborists in your area who hold an ISA credential. If you don't see your city or state/prov then there isn't an arborist currently listed. To verify an arborist's ISA credentials, please use the [Verify a Credential](#) tool.

Use the search options below to locate an arborist.

Search by Name

First Name

Last Name

or

Search by Location

Country

Please select...

ISA promotes the hiring of companies who have ISA certified professionals on staff. ISA Certified Arborists® are held to a Code of Ethics and are encouraged to follow industry standards. Certification demonstrates the individual has the knowledge to perform tree work correctly, but does not guarantee the quality of the work performed by that individual. If you feel someone has not provided proper tree care, you may report a [code of ethics violation](#).

Disclaimer:

This online search directory is a voluntary listing and is strictly intended to serve as a method to locate ISA credential holders in order to secure tree care services. It is not intended to be used to market products or services to credential holders. Individuals who violate this restriction by using this directory to contact credential holders for unsolicited commercial purposes may be subject to legal action.



International Society of Arboriculture
www.isa-arbor.com • p. +1 678.367.0981 • isa@isa-arbor.com

©International Society of Arboriculture 2009-2023

Email comments and questions to ISA

Tuesday, September 26, 2023 7:49:16 PM (EST/ISA Headquarters Time)

[Please click here to view our privacy policy.](#)



Brought to you by ISA



SEARCH

MENU



Username:

Password:

Remember Login



International Society of Arboriculture
 www.isa-arbor.com • p. +1 678.367.0981 • isa@isa-arbor.com

©International Society of Arboriculture 2009-2023
 Email comments and questions to ISA
 Tuesday, September 26, 2023 7:49:24 PM (EST/ISA Headquarters Time)
 Please click here to view our privacy policy.



Brought to you by ISA



SEARCH

MENU



Username:

Password:

Remember Login



International Society of Arboriculture
www.isa-arbor.com • p. +1 678.367.0981 • isa@isa-arbor.com

©International Society of Arboriculture 2009-2023
Email comments and questions to ISA
Tuesday, September 26, 2023 7:49:33 PM (EST/ISA Headquarters Time)
[Please click here to view our privacy policy.](#)



Brought to you by ISA



MENU

Tree Owner Information

- > Benefits of Trees
- > Choosing the Right Tree
- > Managing Tree Hazards and Risk
- > Plant Health Care
- > Planting a Tree
- > Pruning Your Trees
- > Tree Owner's Manual
- > Why Hire an Arborist?
- > Translated Brochures

[Home](#) > [Tree Owner Information](#) > [Benefits of Trees](#)



Benefits of Trees



The benefits of trees extend far beyond the beauty they bring to the landscape. Trees give off oxygen, reduce the amount of stormwater runoff, provide protection, and offer many other social, environmental, and economic benefits..

Learn more about the [benefits of trees](#)

Social Benefits



Trees provide beauty and help people feel serene, peaceful, restful, and tranquil. They significantly reduce workplace stress and fatigue while also decreasing the recovery time following medical procedures. Green spaces can also help lower the amount of criminal activity in a community.

Communal Benefits

Trees found in urban environments often serve architectural and engineering functions by providing privacy, emphasizing views or obstructing objectionable views. With proper selection and maintenance, even trees on private property can provide benefits to the community. Trees provide privacy, accentuate views, reduce noise and glare, and even enhance architecture.



Trees also bring natural elements and wildlife habitats into urban surroundings, all of which increase the quality of life for residents in the community.

Environmental Benefits

Trees alter our environment by using their leaves to filter the air we breathe by removing dust and other particles. Deciduous shade trees cool homes in the summer and allow the winter sun to heat homes when they lose their leaves. Trees can serve as a windbreak. The more compact the foliage on the group of trees the more effective the windbreak.

Economic Benefits



While many people understand the benefits of trees, very few realize trees have a dollar value that can be measured. Tree appraisal is a process that may help you find out what your trees and plants are worth.

An arborist can help a homeowner determine the value of trees by providing an appraisal. If your trees or shrubs are damaged or destroyed, you may be able to recapture your loss through an insurance claim or as a deduction from your federal income tax.

Learn more about the [value of trees](#) 

Maximizing the Benefits of Trees

Maximizing a tree's benefits requires routine maintenance. A professional in the tree, nursery or landscape industry, or a landscape architect can help you plan, install, and care for all of your trees and plants so that each of them will be worth more. While some homeowners may want to remove a tree, the cost associated with tree removal and planting a young tree can outweigh the cost of regular tree maintenance practices such as tree inspection, pruning, and mulching.

Learn more about [mature tree care](#) 



International Society of Arboriculture
www.isa-arbor.com • p. +1 678.367.0981 • isa@isa-arbor.com

*©International Society of Arboriculture 2009-2023
Email comments and questions to ISA
Tuesday, September 26, 2023 7:49:41 PM (EST/ISA Headquarters Time)
Please click here to view our privacy policy.*



TREES ARE GOOD



Brought to you by ISA

 SEARCH

MENU

Tree Owner Information

- > *Benefits of Trees*
- > *Choosing the Right Tree*
- > *Managing Tree Hazards and Risk*
- > *Plant Health Care*
- > *Planting a Tree*
- > *Pruning Your Trees*
- > *Tree Owner's Manual*
- > *Why Hire an Arborist?*
- > *Translated Brochures*

[Home](#) > [Tree Owner Information](#) > [Choosing the Right Tree](#)



Choosing the Right Tree

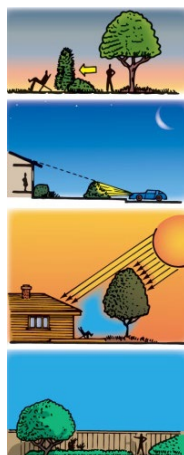


Although trees are a great addition to a landscape, not all trees are equally well-suited for every site or climate. Tree selection and placement are important decisions a homeowner makes when landscaping or replacing a tree. Matching the tree to the site benefits both the tree and the homeowner.

Homeowners should consider soil conditions, what clearance is needed for sidewalks or driveways, and what function the tree will serve before asking the question, “What kind of tree should I plant?”

Learn more about proper [tree selection and placement](#)

Tree Function



Different trees serve many different functions. For example, deciduous shade trees cool homes in the summer and allow the winter sun to heat homes when they lose their leaves, while evergreens can provide a windbreak or a screen for privacy, and fruit trees or shrubs provide food for the owner or wildlife. An arborist can help homeowners select the right tree based on the landscape and the desired function.

Tree Form and Size

Selecting the right form (shape) to complement the desired function can significantly reduce maintenance costs and increase the tree’s value in the landscape. In addition, mature trees typically provide the greatest economic and environmental returns.

Hundreds of form and size combinations are available for homeowners to choose from. Low spreading trees may be planted under overhead utility lines, while a tall, narrow evergreen may

provide a screen.

Site Conditions

Choosing a tree for the right site conditions is the key to tree survival and reduced maintenance. Consider the following:

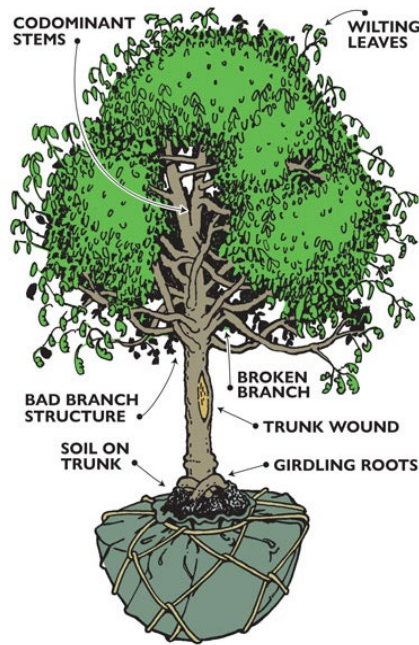
- Soil conditions
- Exposure to the sun and wind
- Space constraints
- The tree's hardiness or ability to survive extreme temperatures in a specific region
- Human activity
- Drainage
- Insect and disease susceptibility



Personal preferences and site constraints also play major roles in the selection process. An arborist can provide more information and help homeowners throughout the tree selection process.

Learn more about these and other factors as they relate to [tree selection and placement](#) 

Buying High-Quality Trees



A high-quality tree can become a long-lasting asset to your property, whereas a low-quality tree may develop costly problems over time, increasing the need for maintenance and reducing the benefits a tree can provide.

Learn more about [buying high-quality trees](#) 

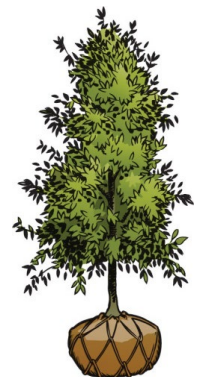
Tree Quality Characteristics

A high-quality tree has

- A straight trunk with well-spaced branches.
- An exposed trunk free of wounds or damage.
- A root system where roots grow straight out from the trunk.

A low-quality tree has

- Weak form in which multiple stems originate from the same point and branches grow into each other.
- A trunk with wounds from handling or incorrect pruning.
- Limited, crushed, or circling roots in an undersized ball or container.



These problems can greatly reduce the tree's prospects for a healthy and productive life. When buying a tree, inspect it carefully to identify problems related to form, injuries, or roots.

Learn more about these and other things to look for when [buying high-quality trees](#) 



International Society of Arboriculture
www.isa-arbor.com • p. +1 678.367.0981 • isa@isa-arbor.com

©International Society of Arboriculture 2009-2023
Email comments and questions to ISA
Tuesday, September 26, 2023 7:49:50 PM (EST/ISA Headquarters Time)
[Please click here to view our privacy policy.](#)

TREES
ARE GOOD™

Brought to you by ISA

SEARCH

MENU

Tree Owner Information

- › [Benefits of Trees](#)
- › [Choosing the Right Tree](#)
- › [Managing Tree Hazards and Risk](#)
- › [Plant Health Care](#)
- › [Planting a Tree](#)
- › [Pruning Your Trees](#)
- › [Tree Owner's Manual](#)
- › [Why Hire an Arborist?](#)
- › [Translated Brochures](#)

[Home](#) › [Tree Owner Information](#) › [Managing Tree Hazards and Risk](#)



Managing Hazards and Risk

Trees provide numerous benefits to those living and working in the urban environment, which increase with tree size and age. However, older and larger trees are also more likely to drop branches or cause root conflicts on the sites they inhabit. In managing these trees, tree owners must recognize the tree benefits and risks.

Whether hazards are created by strong winds or ice-storms, or whether construction on the site may or already has negatively affected the tree, tree owners should recognize tree risk and management strategies to help ensure trees are able to provide their full complement of benefits.

Click on these links to find out more about [recognizing tree risk](#), [safely responding to storm-related tree damage](#), [avoiding damaging trees during construction](#), and [treating trees injured during construction](#).

Recognizing Tree Risk



Trees provide significant benefits to our homes and cities, but when trees fall and injure people or damage property, they are liabilities. Understanding and addressing the risks associated with trees makes your property safer and prolongs the life of the tree.

An arborist can help you manage the trees on your property and can provide treatments that may help reduce the risk associated with certain trees. An arborist familiar with tree risk assessment may suggest one or more of the following:

- Remove the target. While a home or a nearby power line cannot be moved, it is possible to move picnic tables, cars, landscape features, or other possible targets to prevent them from being hit by a falling tree.

- Prune the tree. Remove the defective branches of the tree. Because inappropriate pruning may weaken a tree, pruning work is best done by an ISA Certified Arborist.
- Cable and brace the tree. Provide physical support for weak branches and stems to increase their strength and stability. Such supports are not guarantees against failure.
- Provide routine care. Mature trees need routine care in the form of water, nutrients (in some cases), mulch, and pruning as dictated by the season and their structure.
- Remove the tree. Some trees with unacceptable levels of risk are best removed. If possible, plant a new tree in an appropriate place as a replacement.

Learn more about [recognizing tree risk](#) .

Find an arborist who is [ISA Tree Risk Assessment Qualified](#).

Safe Response to Tree-Related Storm Damage

Severe weather can have a lasting impact on your home and the trees in the surrounding landscape. Tearing winds and penetrating rains work together, softening soils and overturning trees. Lightning strikes generate heat that vaporizes water within the tree, causing wood to split and bark to explode. During a storm, the failure of part or all of one mature tree may cause significant damage to personal property or utility lines.

Tree owners can follow these steps to help ensure a safe and effective response to tree-related storm damage:

- Assess the damages
- Take safety precautions
- Resist the urge to do it yourself
- Hire an ISA Certified Arborist

Learn more about the [safe response to storm-related tree damage](#) .

Avoiding Tree Damage During Construction



Homes are often constructed near existing trees to take advantage of their aesthetic and environmental value. Unfortunately, the processes involved with construction can be deadly to nearby trees. Proper planning and care are needed to preserve trees on building sites. An arborist can help you decide which trees can be saved. The arborist can also work with the builder to protect the trees throughout

each phase of construction.



Learn more about the [avoiding tree damage during construction](#) 

Planning

Your arborist and builder should work together early in the planning phase of construction. Sometimes small changes in the placement or design of your house or driveway can make a great difference in whether a critical tree will survive. If utilities cannot be re-routed away from trees, less damaging tunneling and trenching installation techniques exist.

Erect Barriers to Limit Access

Prior to the start of work, an arborist can recommend where tree protection fences should be installed. Fences should have signs attached to inform people of why they should stay out and who to contact if they need to get in. If machinery must come close to a tree trunk, an arborist can recommend how the trunk can be protected from damage with additional protection materials. If there will be trenching, grading or other excavation near trees that may damage roots, an arborist can prune roots out of the way before excavation, or cleanly cut them before any damage is done.

Treatment of Trees Damaged by Construction

The processes involved in construction can be devastating to the surrounding trees if no measures have been taken to protect them. Remedial treatments may save some construction-damaged trees, but immediate implementation is critical. If you have trees that have been affected by recent construction, a professional arborist can assess tree viability and risk potential and recommend treatment options.

Learn more about the [treatment of trees damaged during construction](#) 

Inspection and Assessment

Because construction damage can affect the structure and stability of a tree, your arborist should check for potential risks. A risk inspection may involve a simple visual inspection, or instruments may be used to check for the presence of decay. Identified risks can sometimes be reduced or eliminated by removing an unsafe limb, pruning to reduce weight, or installing cables or braces to provide structural support.

Common damage caused during construction includes:

- physical injury to the trunk and crown
- soil compaction in the root zone
- severed roots
- smothered roots from addition of fill soil
- increased wind and sunlight exposure
- stress due to grade and drainage changes

Treating Trunk and Crown Injuries

- **Pruning.** Split, torn, or broken branches should be removed. Also, remove any dead or diseased limbs from the crown of the tree. It is best to postpone other

maintenance pruning, such as crown raising, for a few years. Do not thin or reduce tree canopies to compensate for root loss.

- **Cabling and Bracing.** If branches or tree trunks need additional support, a professional arborist may be able to install cables or bracing rods. If cables or braces are installed, they must be inspected regularly. The amount of added security offered by the installation of support hardware is limited. Not all weak limbs are candidates for these measures.
- **Treating Damaged Bark and Trunk Wounds.** Bark may be damaged along the trunk or on major limbs. If this happens, remove the loose bark. Jagged edges can be cut away with a sharp knife. Take care not to cut into living tissues.
- **Irrigation and Drainage.** One of the most important tree maintenance procedures following construction damage is to maintain an adequate, but not excessive, supply of water to the root zone. Water trees as needed, especially during the dry summer months. A long, slow soak over the entire root zone is the preferred method of watering. Avoid frequent, shallow watering or overwatering. Poor drainage must be corrected or trees will decline rapidly.
- **Mulching.** Apply a 2- to 4-inch layer of organic mulch such as wood chips, shredded bark, or pine needles over a tree's root system for a simple and effective means of enhancing root growth. The mulch helps condition the soil, moderates soil temperatures, maintains moisture, and reduces competition from weeds and grass. The mulch should extend as far out from the tree as practical for the landscape site.

Monitoring for Decline and Risk

Despite your best efforts, you may lose some trees from construction damage. Symptoms of decline include smaller and fewer leaves, dieback in the crown of the tree, and premature fall color. Stressed trees are more prone to attack by certain diseases and pests, which further a tree's downward spiral. Severe damage and decline may also lead to defects and decay. Consult with an arborist for a professional assessment if you are concerned with your tree's health or structural integrity.

Learn more about the [treatment of trees damaged during construction](#) .



International Society of Arboriculture

www.isa-arbor.com • p. +1 678.367.0981 • isa@isa-arbor.com

©International Society of Arboriculture 2009-2023

Email comments and questions to ISA

Tuesday, September 26, 2023 7:49:58 PM (EST/ISA Headquarters Time)

Please click [here](#) to view our privacy policy.

TREES
ARE
GOODBrought to you by **ISA**

SEARCH

MENU

Tree Owner Information

- > *Benefits of Trees*
- > *Choosing the Right Tree*
- > *Managing Tree Hazards and Risk*
- > *Plant Health Care*
- > *Planting a Tree*
- > *Pruning Your Trees*
- > *Tree Owner's Manual*
- > *Why Hire an Arborist?*
- > *Translated Brochures*

[Home](#) > [Tree Owner Information](#) > [Plant Health Care](#)

Tree Health



Proper plant health involves monitoring and using preventative treatments to ensure your trees stay healthy. Discolored leaves, dead branches, or early leaf drop are all symptoms that may require contacting an arborist.

Trees, although dominant features in the landscape, share a common resource with turfgrasses, shrubs and other plants in the area—the soil. All of the plants roots intermingle and compete for water and nutrients. The roots of a single mature tree may extend well into your lawn or flower beds.

Every treatment applied to the lawn can impact the appearance and vitality of a tree. Conversely, treatments applied to a tree can influence the appearance and vitality of the underlying turfgrass. The care of each plant in a landscape can affect the health of every plant in the landscape.

Learn more about improving your [tree's health](#)

Plant Health Care

Homeowners should contact a local arborist when they see symptoms such as discolored leaves, dead branches, or early leaf drop. The cause can be a minor problem that is easily explained and corrected, but other times the problem can be more complex, with several underlying causes and a remedy requiring treatments extending over several years.

Plant Health Care (PHC) programs help to maintain or improve the landscapes appearance, vitality, and safety using the most cost-effective and environmentally sensitive practices and treatments available. PHC involves routine monitoring, preventive treatment, and a strong working relationship between the arborist and the property owner.

Learn more about [plant health care](#)

Insects and Diseases





Insects and diseases can threaten tree health. As soon as you notice an abnormality in your tree's appearance, you should begin a careful examination of the problem and contact an arborist to help identify the specific symptoms and try to diagnose the problem and select an appropriate treatment.

Learn more about [insects and diseases](#) .

Trees and Turf

Woody plants and turfgrasses are critical design elements in urban and suburban landscapes. Trees and turf offer distinct personal, functional, and environmental benefits. The intended benefits of these plants may never be obtained if potential incompatibilities are not addressed.

Undesirable effects such as thinning grass under shade trees, large roots that hinder maintenance, and trees damaged from mowers are all things that can be mitigated with proper care.

Learn more about [trees and turf](#) .

Mulching

Mulching is one of the most beneficial practices a homeowner can use for better tree health. Mulches are applied to the soil surface to maintain moisture and improve soil conditions. However, if misapplied, mulch may have little, or even negative, impact on the trees in your landscape.

The benefits of proper mulching include:

- Reduces soil moisture loss through evaporation.
- Controls weed germination and growth.
- Insulates soil, protecting roots from extreme summer and winter temperatures.

Learn more about [proper mulching](#) .



Mature Tree Care

Healthy trees increase in value with age and increase property values, beautify surroundings, purify air, and save energy by providing cooling shade from summer's heat and protection from winter's wind.

Trees in cities or near houses need regular maintenance to promote health and structural integrity. An effective maintenance program, including regular inspections and necessary follow-up care—mulching, fertilizing, and additional soil management—can identify problems and correct them before they become damaging or fatal.

Learn more about [mature tree care](#) .



International Society of Arboriculture
www.isa-arbor.com • p. +1 678.367.0981 • isa@isa-arbor.com

*©International Society of Arboriculture 2009-2023
Email comments and questions to ISA
Tuesday, September 26, 2023 7:50:07 PM (EST/ISA Headquarters Time)
Please click here to view our privacy policy.*

TREES
ARE
GOOD

Brought to you by ISA

SEARCH

MENU

Tree Owner Information

- › [Benefits of Trees](#)
- › [Choosing the Right Tree](#)
- › [Managing Tree Hazards and Risk](#)
- › [Plant Health Care](#)
- › [Planting a Tree](#)
- › [Pruning Your Trees](#)
- › [Tree Owner's Manual](#)
- › [Why Hire an Arborist?](#)
- › [Translated Brochures](#)

[Home](#) › [Tree Owner Information](#) › [Planting a Tree](#)

Planting a Tree



Trees are an investment. How well that investment grows depends on several factors including, the type of tree planted, its location and the care provided. Getting your new tree off to a healthy start will help the tree mature to its full size and ensures it will provide environmental, economic, and social benefits throughout its lifetime.

Learn more about [planting a new tree](#) .

When to Plant

Dormant seasons, the fall after leaf drop and early spring before bud break, are ideal times to plant new trees. Be sure the weather conditions are cool and allow time for new 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 can be planted throughout the growing season. In areas where trees grow year round, tropical and subtropical climates, any time is a good time to plant a new tree as long as sufficient water is available.

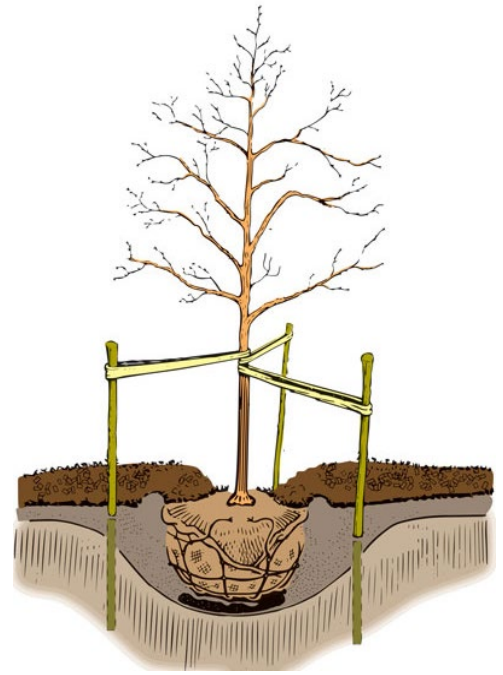
Planting Stress

Transplant shock is a state of slowed growth and reduced vitality following transplanting and can affect balled-and-burlapped trees lose a causing them to lose a significant portion of their root system when dug at the nursery. Container trees may also experience transplant shock. Proper site preparation, careful handling to prevent further root damage, and good follow-up care reduces transplant shock and promotes faster recovery.

How to Plant a Tree

Carefully follow these nine steps to help your tree establish quickly in its new location:

1. The trunk flare is where the trunk expands at the base of the tree. Ensure trunk flare is partially visible after the tree is planted. Remove excess soil prior to planting if flare is not visible.



2. Dig a shallow, broad planting hole. Holes should be 2–3 times wider than the root ball, but only as deep as the root ball.

3. If wrapped, remove any cover from around the root ball and trunk to facilitate root growth. Remove wire basket or cut one or two rings off so it is low-profile and will not interfere with future root growth. Inspect tree root ball for circling roots and straighten, cut, or remove them. Expose the trunk flare if necessary.

4. Place the tree at the proper height. When placing the tree in the hole, lift by the root ball, not the trunk. The majority of tree's roots develop in the top 12 inches (30 cm) of soil. Planting too deep can be harmful to the tree.

5. Straighten the tree in the hole. Before filling the hole, have someone examine the tree from several angles to confirm it is straight.

6. Fill the hole gently but firmly. Pack soil around the base of the root ball to stabilize it. Fill the hole firmly to eliminate air pockets. Further reduce air pockets by watering periodically while backfilling. Avoid fertilizing at the time of planting.

7. If staking is necessary, three stakes or underground systems provide optimum support. Studies have shown that trees develop stronger trunks and roots if they are not staked; however, it may be required when planting bare root stock or on windy sites. Remove stakes after first year of growth.

8. Mulch the base of the tree. Place a 2–3 inch (5–7.5 cm) layer of mulch, but be sure not to pile mulch right against the trunk. A mulch-free area of 1–2 inches (2.5–5 cm) wide at the base of the tree will reduce moist bark and prevent decay.

9. Provide follow-up care. Keep the soil moist by watering at least once a week, barring rain, and more frequently during hot, windy weather. Continue until mid-fall, tapering off as lower temperatures require less-frequent watering.

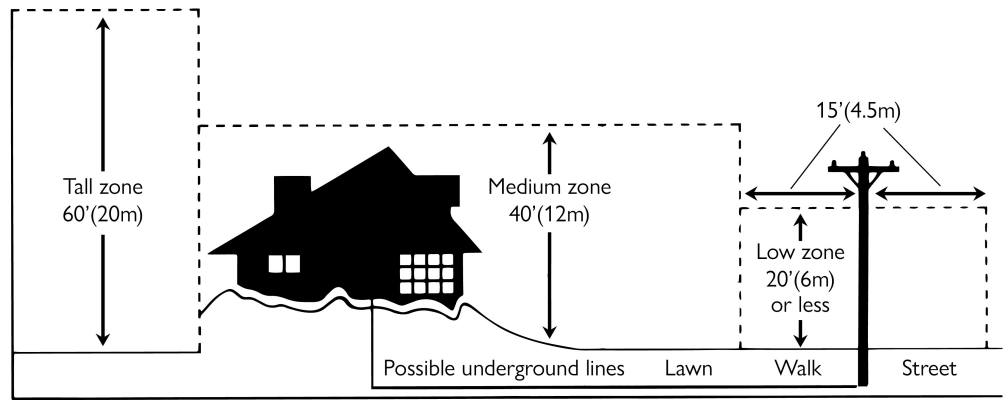
Other follow-up care to consider:

- Minor pruning of branches damaged during the planting process may be required.
- Prune sparingly after planting. Delay corrective pruning until a full season of growth.
- If trunk wrapping is necessary, use biodegradable materials and wrap from the bottom.

Consult your local ISA Certified Arborist[®] or a tree care or garden center professional for assistance regarding your tree.

Note: Before you begin planting your tree, be sure you have located all underground utilities prior to digging. 811 is the US national call-before-you-dig phone number. Anyone who plans to dig should call 811 or go to their state 811 center's website.

Right Tree – Right Place



Proper tree placement can enhance your property and prevent costly maintenance and repairs down the road. Consider utility lines, the side walk and driveways when choosing a location. A local arborist or tree care professional, utility company, local nursery, or county extension office can help with proper tree placement.

Mulching

Mulching is one of the most beneficial practices a homeowner can use for better tree health. Mulches are applied to the soil surface to maintain moisture and improve soil conditions. However, if misapplied, mulch may have little, or even negative, impact on the trees in your landscape.

The benefits of proper mulching include:

- Reduces soil moisture loss through evaporation.
- Controls weed germination and growth.
- Insulates soil, protecting roots from extreme summer and winter temperatures.

Learn more about [proper mulching techniques](#) 



Avoiding Tree and Utility Conflicts



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.

Learn more about [planting trees near utilities](#) 

Overhead Lines

Overhead utility lines are easy to spot, yet often overlooked. 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.

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. Electric, gas, water, and sewer lines installed underground can be compromised by tree roots. Roots commonly spread many times the breadth of the tree crown and can extend out farther than the height of a tree.

Locating Underground Utilities

The greatest danger to underground utilities occurs during planting. Accidental digging into underground utilities can cause costly repairs to restore interrupted service or result in injury or loss of life. Before digging call your utility company or locator service to make sure you have located underground utilities. Never assume that utilities are buried deeper than you plan to dig. Locating underground utilities before digging is often required by law.



International Society of Arboriculture
www.isa-arbor.com • p. +1 678.367.0981 • isa@isa-arbor.com

*©International Society of Arboriculture 2009-2023
Email comments and questions to ISA
Tuesday, September 26, 2023 7:50:16 PM (EST/ISA Headquarters Time)
Please click here to view our privacy policy.*

TREES
ARE
GOOD

Brought to you by ISA

SEARCH

MENU

Tree Owner Information

- > *Benefits of Trees*
- > *Choosing the Right Tree*
- > *Managing Tree Hazards and Risk*
- > *Plant Health Care*
- > *Planting a Tree*
- > *Pruning Your Trees*
- > *Tree Owner's Manual*
- > *Why Hire an Arborist?*
- > *Translated Brochures*

[Home](#) > [Tree Owner Information](#) > [Pruning Your Trees](#)

Pruning Trees



Pruning is the most common tree maintenance procedure. Unlike forest trees, landscape trees need a higher level of care to maintain structural integrity and aesthetics. Pruning must be done with an understanding of tree biology because improper pruning can create lasting damage or shorten the tree's life.

Learn more about [mature tree pruning](#).

Reasons for Pruning



Each cut can potentially change the growth of the tree; therefore, it is important to remember that no branch should be cut without a reason. Some common reasons for pruning include, removal of dead branches to improve form and increase safety, to increase light and air penetration for plants below the tree's crown, or corrective and preventative measures.

When to Prune

Most light, routine pruning to remove weak, dead, or diseased limbs can be accomplished at any time during the year with little effect on the tree.

As a rule, growth and wound closure are maximized if pruning takes place before the spring growth flush. Heavy pruning of live tissue just after the spring growth flush should be avoided, especially on weak trees.

Tree diseases, such as oak wilt, can be spread when pruning wounds provide access to disease-causing agents. Susceptible trees should not be

pruned during active transmission periods.

If you're unsure about when to prune, contact your local arborist.

Pruning Techniques

Specific types of pruning may be necessary to maintain a mature tree in a healthy, safe, and attractive condition.

- **Cleaning** is the removal of dead, dying, diseased, weakly attached, and low-vigor branches from the crown of a tree.
- **Raising** removes the lower branches from a tree to provide clearance for buildings, vehicles, pedestrians, and vistas.
- **Reduction** reduces the size of a tree, often for utility line clearance. Reducing a tree's height or spread is best accomplished by pruning back the leaders and branch terminals to secondary branches that are large enough to assume the terminal roles (at least one-third the diameter of the cut stem). Compared to topping, reduction helps maintain the tree's form and structural integrity.
- **Reducing density** of foliage at the crown periphery, thinning, is sometimes performed to increase wind or light penetration for aesthetic reasons and to promote interior foliage development.

Pruning Young Trees

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

Remember that each cut has the potential to change the growth of the tree, therefore it is important to set an objective for why the tree will be pruned. For young trees the objective is to improve tree structure. Poor pruning can cause damage the tree must grow over causing the wound to stay within the tree forever.

Learn more about [pruning young trees](#) .

Pruning Palms

Most pruning of palms is done to remove dead or dying fronds, inflorescences (flowering), and/or fruiting clusters, particularly those that may be a potential risk to the public, such as coconuts.

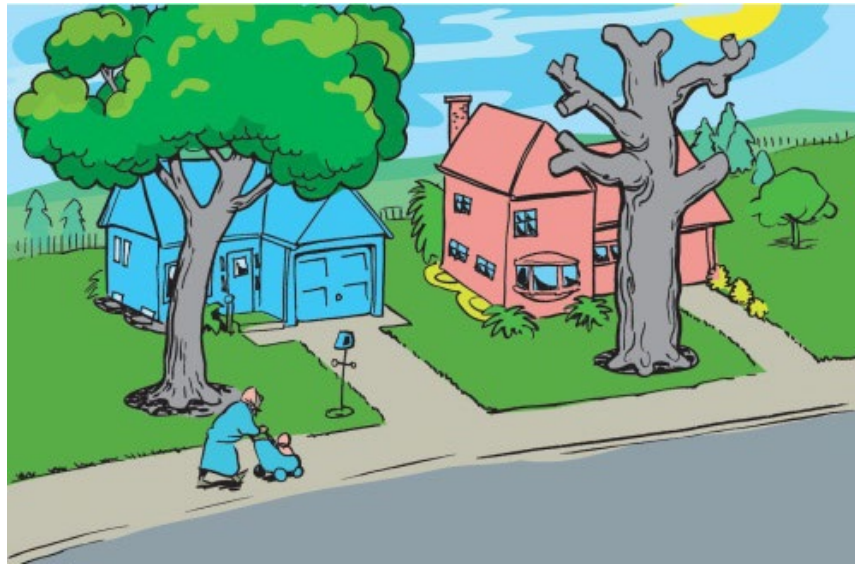
Pruning is usually conducted at least biannually. Coconuts may be pruned as often as every 3–4 months to minimize the risk of injury or damage from the heavy fruit. Great care should be taken to avoid any damage to the terminal bud. Over-pruned palms may have slower growth and may attract pests.

Generally, remove old, dead, lower fronds only, unless otherwise required for clearance. Occasionally, live green fronds, where the frond shaft has descended below a horizontal plane, can be removed. Removing live fronds where the shaft is greater than 45 degrees above horizontal is not known to reduce future pruning requirements.

Climbing spikes should not be used to climb palms for pruning because they permanently wound the palm trunk. Wounds on palms do not close.

Learn more about [palms](#) .

Don't Top Trees!



Topping is the indiscriminate cutting of tree branches to stubs or to lateral branches that are not large enough to assume the terminal role. Topping is often used to reduce the size of a tree, but it is perhaps the most harmful tree pruning practice known.

Topping can lead to unacceptable risk, tree stress, and decay. It is also expensive and destroys the natural form of the tree.

Alternatives to topping include removing small branches to their point of origin, or pruning back larger limbs to a lateral branch that is large enough to assume the terminal role. Sometimes the best solution is removing the tree and replacing it with a species that is more appropriate for the site.

Be sure to consult with a local arborist about alternatives to topping.

Learn more about [why topping hurts trees](#) .



International Society of Arboriculture
www.isa-arbor.com • p. +1 678.367.0981 • isa@isa-arbor.com

©International Society of Arboriculture 2009-2023
Email comments and questions to ISA
Tuesday, September 26, 2023 7:50:28 PM (EST/ISA Headquarters Time)
[Please click here to view our privacy policy.](#)

TREES
ARE GOOD

Brought to you by ISA

SEARCH

MENU

Tree Owner Information

- › *Benefits of Trees*
- › *Choosing the Right Tree*
- › *Managing Tree Hazards and Risk*
- › *Plant Health Care*
- › *Planting a Tree*
- › *Pruning Your Trees*
- › *Tree Owner's Manual*
- › *Why Hire an Arborist?*
- › *Translated Brochures*

[Home](#) › [Tree Owner Information](#) › [Tree Owner's Manual](#)



Tree Owner's Manual

This US Forest Service publication highlights proper tree care from installation to maintenance, with many easily understood images and text. 

Tree Owner's Manual

A printed version of this product is available for purchase in the [ISA Store](#).

From the Manual

Trees restore natural harmony in an urban environment, giving scale to human life. Trees are alive, like us, and require an investment and continuous maintenance in order to provide the maximum desired benefits. Some benefits include:

- **Air Filtration.** Trees filter out particulate matter and absorb harmful fumes while producing oxygen.
- **Water Purification and Conservation.** Trees slow and filter rain water and protect aquifers and watersheds.
- **Lower Heating/Cooling Bills.** Trees reduce yearly heating and cooling costs by 2.1 billion dollars.
- **Climate Control.** Trees moderate and provide protection from the effects of sun, wind, and rain.
- **Increase Property Value.** Well-cared for landscape properties with trees are 5-20% more valuable than non-landscaped properties.
- **Improve Social Interaction.** Trees in neighborhoods lower the crime rate, create privacy, provide sound barriers, as well as add beauty.



International Society of Arboriculture
www.isa-arbor.com • p. +1 678.367.0981 • isa@isa-arbor.com

*©International Society of Arboriculture 2009-2023
Email comments and questions to ISA
Tuesday, September 26, 2023 7:50:37 PM (EST/ISA Headquarters Time)
Please click here to view our privacy policy.*

TREES
ARE GOOD™Brought to you by **ISA**

SEARCH

MENU

Tree Owner Information

- › [Benefits of Trees](#)
- › [Choosing the Right Tree](#)
- › [Managing Tree Hazards and Risk](#)
- › [Plant Health Care](#)
- › [Planting a Tree](#)
- › [Pruning Your Trees](#)
- › [Tree Owner's Manual](#)
- › [Why Hire an Arborist?](#)
- › [Translated Brochures](#)

[Home](#) › [Tree Owner Information](#) › [Translated Brochures](#)

Translated Brochures

ISA has worked with its non-US chapters to provide translations of several of our tree care brochures. These versions are made available via the websites listed below.

- [Czech \(Ceština\)](#)
- [Dutch \(Hollands\)](#)
- [French \(Français\)](#)
- [German \(Deutsche\)](#)
- [Italian \(Italiano\)](#)
- [Norwegian \(Norsk\)](#)
- [Polish \(Polski\)](#)
- [Portuguese \(Português\)](#)
- [Spanish \(Español\) Updated 2022!](#)
- [Swedish \(Svenska\) Updated 2022!](#)



International Society of Arboriculture
www.isa-arbor.com • p. +1 678.367.0981 • isa@isa-arbor.com

©International Society of Arboriculture 2009-2023

Email comments and questions to ISA

Tuesday, September 26, 2023 7:50:44 PM (EST/ISA Headquarters Time)

[Please click here to view our privacy policy.](#)

Benefits of Trees

Trees provide social, communal, environmental, and economic benefits.



Trees provide benefits that promote health, social well-being, and even help your home. Trees serve many purposes in your local community and throughout the entire world.

Social Benefits

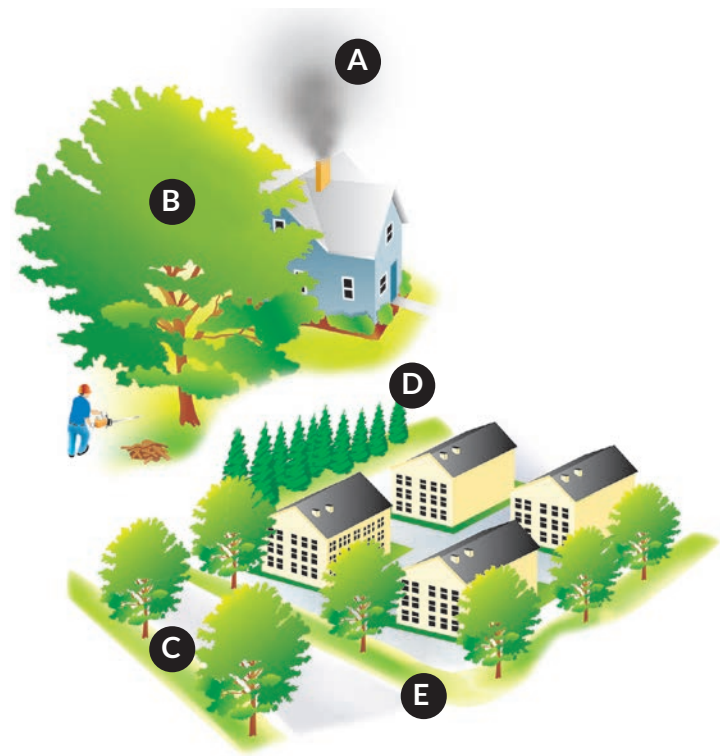
- Trees provide beauty and help people feel serene, peaceful, restful and tranquil.
- Trees significantly reduce workplace stress and fatigue and decrease recovery time after medical procedures.
- Trees may help reduce criminal activity.

Economic Benefits

- Property values of landscaped homes are 5%– 20% higher than non-landscaped homes.
- Individual trees have value that is affected by size, condition, and function. In general, the larger the tree, the greater the value.
- Air conditioning costs are lower in a tree-shaded home; and heating costs are reduced when a home has a windbreak.
- Well-maintained trees can add value to a home.

Communal Benefits

- City trees often serve architectural and engineering functions by providing privacy, emphasizing views or obstructing objectionable views.
- Trees may reduce glare/reflection or direct pedestrian traffic.
- Trees may soften, complement, or enhance architecture.
- Trees bring natural elements and wildlife habitats into urban surroundings, all of which increase the quality of life for residents in the community.



Environmental Benefits

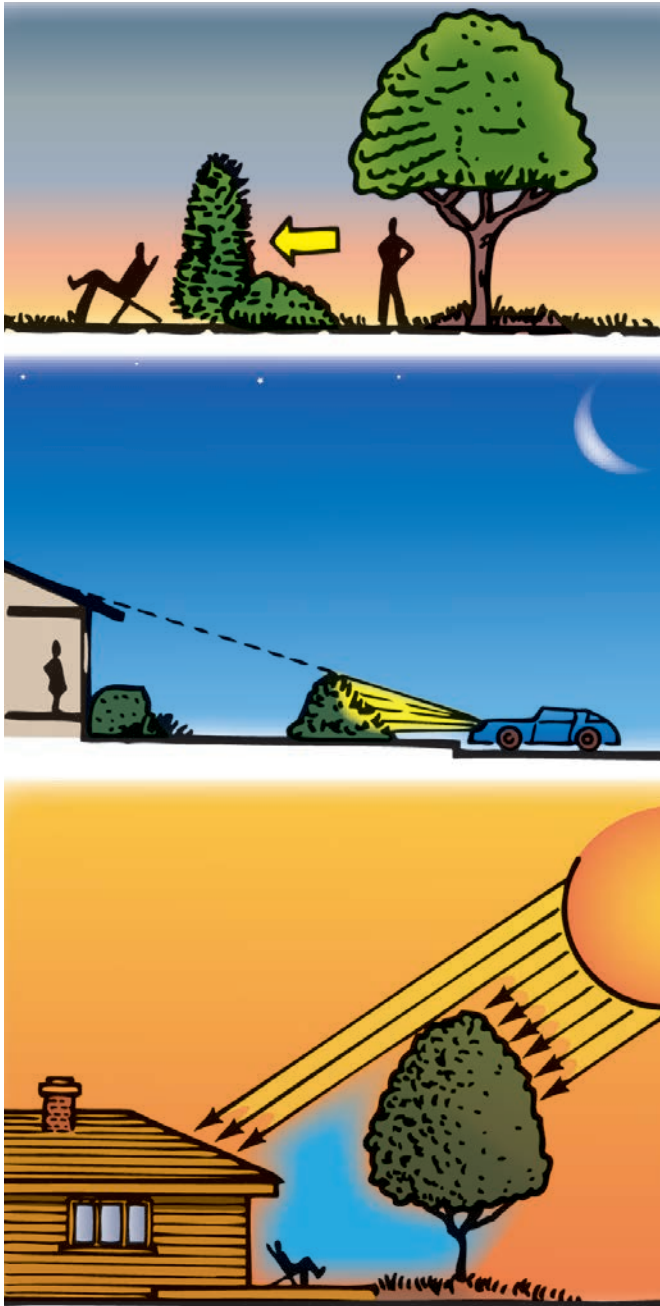
(See figure above)

- A: Leaves filter the air we breathe by removing dust and other particles; absorbing carbon dioxide and various air pollutants such as ozone, carbon monoxide and sulfur dioxide; and release oxygen.
- B: Deciduous shade trees cool homes in the summer and allow the winter sun to heat homes when they lose their leaves.
- C: Trees help cool the environment, working as a simple and effective way to reduce urban heat islands (pavement and buildings in commercial areas cause higher temperatures by absorbing the sun's heat).
- D: Trees can serve as a windbreak. The more compact the foliage on the group of trees the more effective the windbreak.
- E: Trees intercept water, store some of it and reduce stormwater runoff.

Trees Require an Investment

Trees provide numerous aesthetic and economic benefits, but can have costs. The costs associated with large tree removal and replanting with a smaller tree can be significant. In addition, the economic and environmental benefits produced by a young replacement tree are minimal when compared to those of a mature specimen.

Extending the functional lifespan of large, mature trees with routine maintenance can delay these expenses and maximize returns.



Selecting the right form (shape) to complement the desired function can significantly reduce maintenance costs and increase the tree's value in the landscape.

An informed home owner can be responsible for many tree maintenance practices. Corrective pruning and mulching gives young trees a good start. Shade trees, however, quickly grow to a size that may require the services of an arborist.

Your local garden center, university extension agent, community forester, or consulting arborist can answer questions about tree maintenance, suggest treatments, or recommend qualified arborists. ISA Certified Arborists® have the knowledge and equipment needed to prune, treat, fertilize, and otherwise maintain a large tree.

What Is a Certified Arborist?

ISA Certified Arborists are individuals who have proven a level of knowledge in the art and science of tree care through experience and by passing a comprehensive examination developed by some of the nation's leading experts on tree care. ISA Certified Arborists must also continue their education to maintain their certification. Therefore, they are more likely to be up to date on the latest techniques in arboriculture.

Finding an Arborist

Visit TreesAreGood.org for free tools:

- The "Find an Arborist" tool can help you locate an arborist in your area.
- The "Verify a Credential" tool enables you to confirm whether an arborist has an ISA credential.

Be an Informed Consumer

One of the best methods to use in choosing an arborist is to educate yourself about some of the basic principles of tree care. Visit TreesAreGood.org to read and download all brochures in this series.



www.isa-arbor.com • www.treesaregood.org

©2021 International Society of Arboriculture. (v02.2021)
Through research, technology, and education, the International Society of Arboriculture promotes the professional practice of arboriculture and fosters a greater worldwide awareness of the benefits of trees.

Tree Values

A homeowner's guide to planning for assessing and reducing possible financial losses on trees and specimen shrubs.



What Are Your Trees Worth?

Most people understand the value of trees and other living plants because they beautify surroundings, purify air, produce oxygen, act as sound barriers, and help save energy with their cooling shade in the summer and wind reduction in winter.

Many people, however, don't realize plants have a dollar value that can be measured by competent plant appraisers. Tree appraisal is a process that may help you find out what your trees and plants are worth.

If your trees or shrubs are damaged or destroyed, you may be able to recapture your loss through an insurance claim or as a deduction from your federal income tax.

Planning for Highest Value

A professional in the tree, nursery or landscape industry, or a landscape architect can help you plan, install, and care for all of your trees and plants so that each of them will be worth more.

How Your Trees and Shrubs Are Valuated

The art and science of tree appraisal dates back over 100 years. While the details of the appraisal process have changed to keep up with current techniques, the principles remain the same.

Professionals in the industry have developed a set of guidelines for valuation that have been widely adopted in the field and are recognized by insurance companies, courts, and in some cases, the Internal Revenue Service (IRS).

There are several valuation methods used for tree appraisal that are appropriate based on the situation and type of loss. Using an inappropriate method can result in an appraised value that will not be accepted. This is why getting advice from an experienced appraiser is very important.

Potential Factors in Valuation of Trees and Plants

Size

Sometimes the size and age of a tree are such that it cannot be replaced. Trees that are too large to be replaced should be assessed by a professional who uses a specialized appraisal formula.

Species or Classification

Types of trees that are hardy, durable, highly adaptable, and free from objectionable characteristics are most valuable. They require less maintenance and have sturdy well-shaped branches and pleasing foliage. Tree values vary according to your region, the "hardiness" zone, and even local conditions. If you are not familiar with these variables, be sure your advice comes from a competent source.

Condition

The professional will also consider the condition of the plant. A healthy, well-maintained plant has a higher value. The roots, trunk, branches, and buds need to be inspected.

All of these factors may be measurable in dollars and cents. They can determine the value of trees and specimen shrubs, whether for insurance purposes, court testimony in lawsuits, or tax deductions.



Loss or Damage to Your Landscape Plants

A casualty loss is defined by the IRS as “... a loss resulting from an identifiable event of sudden, unexpected, or unusual nature.” This definition applies to loss resulting from events such as vehicular accidents, storms, floods, lightning, vandalism, or even air and soil pollution.

If your trees or landscape are damaged, first consult your homeowner’s insurance policy to determine the amount and type of coverage you have. Contact the insurance company to have an appraisal made by a competent tree and landscape professional who is experienced in plant appraisal. Have the appraisal made as soon as possible after your loss or damage.

The tree and landscape appraiser accomplishes many things for you. The professional can see things you might miss, help correct damage, and prescribe remedies you may be able to do yourself. The appraiser will establish the amount of your loss in financial terms, including the cost of removing debris and making repairs and replacements.

Checklist

These steps should be taken before and after any loss to your trees and landscape. Taking them can improve the value of your investment in the landscape and prevent financial loss should the trees or landscape be damaged or destroyed.

- Plan your landscape for both beauty and functional value.
- Maintain your landscape to encourage plant health and increase plant value.
- Take pictures of trees and other plants every year during the growing season. Pictures make “before and after” comparisons easier and expedite the processing of insurance claims or deductions for losses on federal tax forms.
- Check your insurance. In most cases, the amount of an allowable claim for any one tree or shrub is a maximum of US\$500.
- For insurance, legal, and income purposes, keep accurate records of your landscape and real estate appraisals on any losses.
- Consult your local Plant Health Care professional at every stage in the life cycle of your landscape (planning, planting, care), and to make sure you do not suffer needless financial loss if a casualty strikes.



What Is a Certified Arborist?

ISA Certified Arborists® are individuals who have proven a level of knowledge in the art and science of tree care through experience and by passing a comprehensive examination developed by some of the nation’s leading experts on tree care. ISA Certified Arborists must also continue their education to maintain their certification. Therefore, they are more likely to be up to date on the latest techniques in arboriculture.

Finding an Arborist

Visit [TreesAreGood.org](https://www.treesaregood.org) for free tools:

- The “Find an Arborist” tool can help you locate an arborist in your area.
- The “Verify a Credential” tool enables you to confirm whether an arborist has an ISA credential.

Be an Informed Consumer

One of the best methods to use in choosing an arborist is to educate yourself about some of the basic principles of tree care. Visit [TreesAreGood.org](https://www.treesaregood.org) to read and download all brochures in this series.



www.isa-arbor.com • www.treesaregood.org

©2021 International Society of Arboriculture. (v02.2021)
Through research, technology, and education, the International Society of Arboriculture promotes the professional practice of arboriculture and fosters a greater worldwide awareness of the benefits of trees.

Tree Selection and Placement

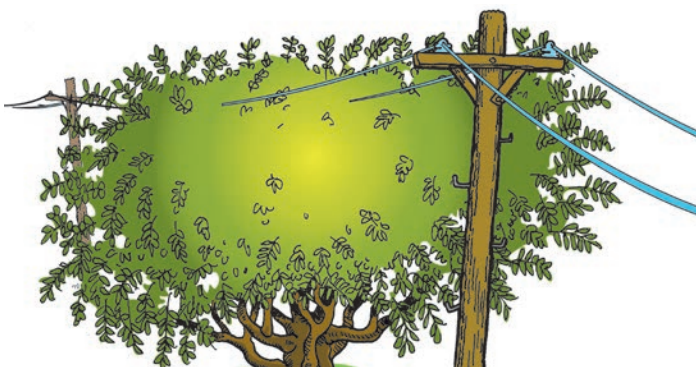
Understand the various factors to consider when selecting trees.



Tree selection and placement are important decisions a homeowner makes when landscaping or replacing a tree. Matching the tree to the site benefits both the tree and the homeowner.

Before asking, "What kind of tree should I plant?" consider the following:

- Why is it being planted and what function will it serve?
- What are the soil conditions?
- How will necessary maintenance be provided?
- What size tree is best suited for the location? How large will the tree be when full grown? Do overhead or below ground utilities prevent planting a tree? What clearance is needed for sidewalks, patios, or driveways?



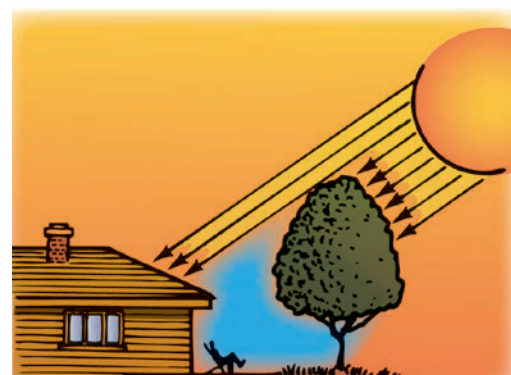
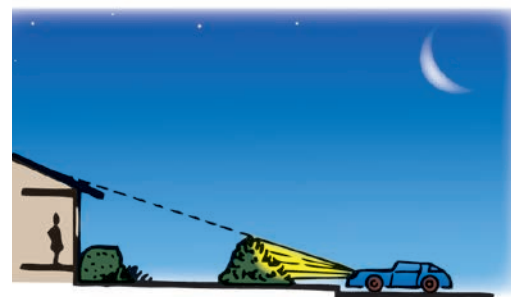
Form and Size

Selecting the right form (shape) to complement the desired function can reduce maintenance costs and increase the tree's value.

- Mature tree size determines the level of benefits received.
- Larger trees typically provide the greatest economic and environmental returns.
- Depending on the site restrictions, you can choose from hundreds of form and size combinations.
- Low spreading trees may be planted under overhead utility lines, while a tall evergreen may provide a screen.

Tree Functions

- Healthy trees increase property values.
- Deciduous shade trees cool homes in the summer and allow the winter sun to heat homes when they lose their leaves.
- Evergreens can provide a windbreak or a screen for privacy.
- Fruit trees or shrubs can provide food for owners or wildlife.
- Street trees reduce the glare from pavement, reduce runoff, filter pollutants, add oxygen, and improve overall appearance and quality of life.
- Trees also provide environmental benefits such reducing the amount of carbon dioxide in the atmosphere.



Site Conditions

Choosing a tree for the right site conditions is the key to tree survival and reduced maintenance. Consider the following:

Soil conditions

- The soil in dense urban areas and new subdivisions is often disturbed, shallow, compacted, and subject to drought. An arborist can take soil samples from your yard for testing to determine which trees are suited for your property and may provide recommendations to improve the soil condition.

Exposure (sun and wind)

- The amount of available sunlight will affect tree and shrub selection. Wind exposure is also a consideration.

Space constraints

- Available planting space can be limited by many factors, such as overhead or underground utilities, pavement, buildings, visibility, or other trees. Ensure there's adequate room to let trees grow above and below ground.

Hardiness zone

- Hardiness is the tree's ability to survive extreme temperatures of a specific region. Research plants for their hardiness information in your region.

Human activity

- The top five causes of tree death result from things people do. Soil compaction, under-watering, overwatering, vandalism, and the number-one cause — planting the wrong tree — account for more tree deaths than all insect- and disease-related tree deaths combined.

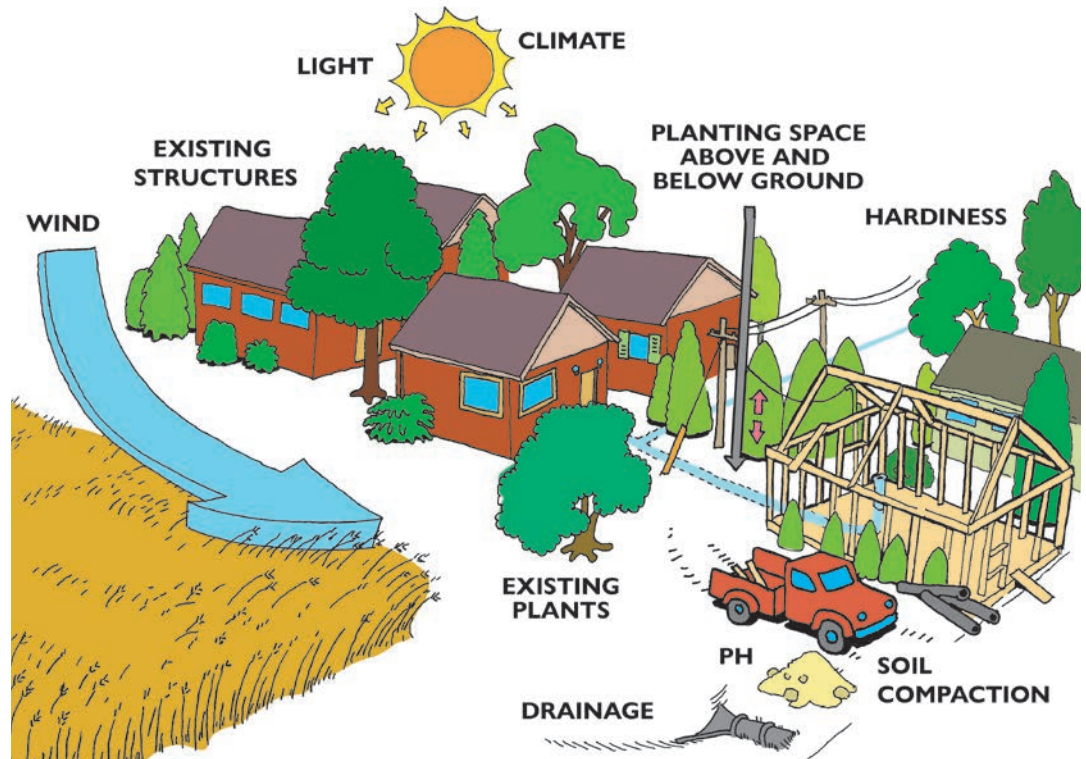
Drainage

- Roots require oxygen to develop; poor drainage limits oxygen availability and may kill the tree.

Insect and disease susceptibility

- Every plant has its particular pest and disease problems and the severity varies geographically.

Personal preferences and site constraints also play major roles in the selection process.



What Is a Certified Arborist?

ISA Certified Arborists® are individuals who have proven a level of knowledge in the art and science of tree care through experience and by passing a comprehensive examination developed by some of the nation's leading experts on tree care. ISA Certified Arborists must also continue their education to maintain their certification. Therefore, they are more likely to be up to date on the latest techniques in arboriculture.

Finding an Arborist

Visit TreesAreGood.org for free tools and to read and download all brochures in this series.

- The "Find an Arborist" tool can help you locate an arborist in your area.
- The "Verify a Credential" tool enables you to confirm whether an arborist has an ISA credential.



www.isa-arbor.com • www.treesaregood.org

©2021 International Society of Arboriculture. (v03.2021)
Through research, technology, and education, the International Society of Arboriculture promotes the professional practice of arboriculture and fosters a greater worldwide awareness of the benefits of trees.

Buying High-Quality Trees



Discover guidelines for determining tree quality at time of purchase and for identifying problems with tree structure, roots, and injuries.

Trees serve many purposes in your local community and throughout the entire world. A high-quality tree, when planted and cared for, can become a long-lasting asset to your property. A low-quality tree may develop costly problems over time, increasing the need for maintenance and reducing the benefits a tree can provide.

What Determines Tree Quality?

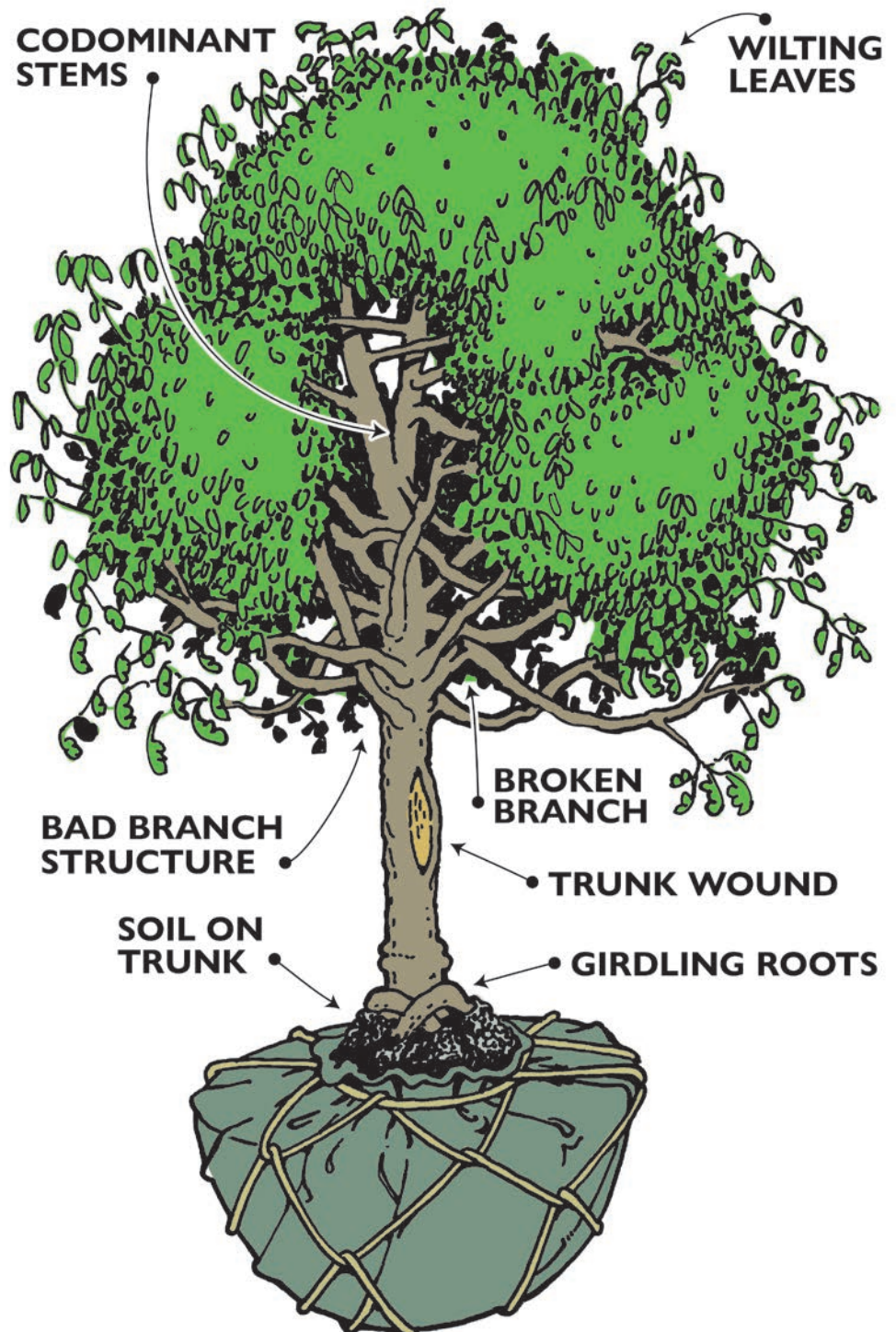
A high-quality tree has:

- A straight trunk with well-spaced branches.
- An exposed trunk free of wounds or damage.
- Roots growing straight out from the trunk.

A low-quality tree has:

- Weak form in which multiple stems originate from the same point and branches grow into each other.
- A trunk with wounds from handling or incorrect pruning.
- Limited, crushed, or circling roots in an undersized ball or container.

These problems can greatly reduce the tree's prospects for a healthy and productive life. When buying a tree, inspect it carefully to identify problems related to form, injuries, or roots.



Root Problems

Nursery trees are often classified based on how they are produced, harvested, and sold. Each type of tree has a unique root system:

- Bare root: no soil surrounding roots; usually small trees.
- Balled and burlapped: roots of field-grown trees surrounded by soil and held with burlap and wire or rope.
- Container: roots and soil in a container.

Bare Root Stock

Bare roots should not be crushed, torn, desiccated, or discolored. The ends of the roots should be cleanly cut. Damaged roots may be cut cleanly prior to planting and watering. The benefits of bare roots are that they tend to grow straight roots after planting and are easy to transport and plant. They have limitations; however, bare roots need to be planted soon after digging to prevent root drying and may not be suitable for all species.

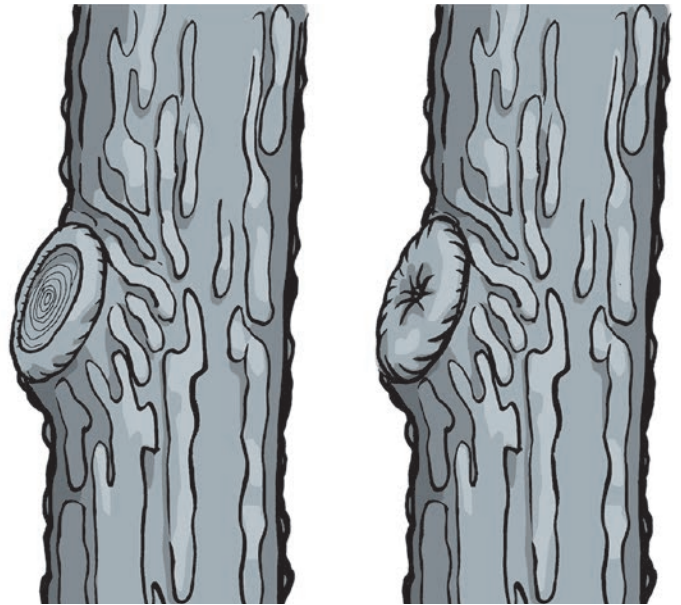
Balled-and-Burlapped Stock

You should be able to see the trunk flare (the area where the trunk widens and connects with the roots) at the top of the root ball. Avoid buying plants with badly damaged or compressed root balls. The top of the root ball should be flat. Rounding may be an indication of woody root loss.

The diameter of the root ball should be at least 10–12 times the diameter of the trunk as measured 6 inches (15 cm) above the trunk flare.

Container Stock

- Roots should not twist or circle in the container.
- Remove the root ball from the container for inspection.
- Pay special attention to larger, exposed roots.
- Circling roots may girdle (*see figure on right*) and kill other roots or the entire tree if wrapped around the trunk.
- Fine circling roots may be cut away at planting.
- Larger roots may be straightened if still flexible.
- You should be able to see the basal trunk flare with container-grown plants. If the trunk flare has been buried, gently expose it before planting the tree, taking care not to damage the bark.



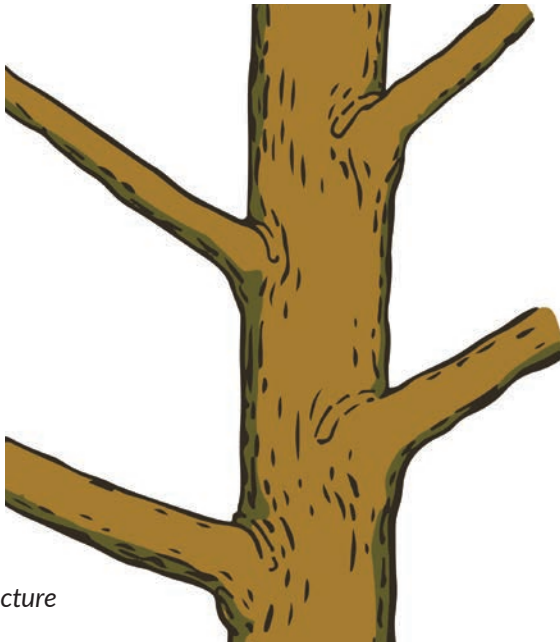
Injuries

Never buy a tree without thoroughly checking the trunk. If the tree is wrapped, remove the wrap and inspect the trunk for wounds, incorrect pruning cuts, and insect injuries. Wrap can be used to protect the trunk during transit, but should be removed after planting.

A correct pruning cut removes the branch just outside of the collar. A ring, or “doughnut,” of sound tissues then grows around the cut (*see figure above*). **Do not make cuts flush to the trunk.** Trunk tissues above and below a flush-cut branch often die, creating dead spots. When high summer or low winter temperatures occur, cracks or long, dead streaks may develop above and below the dead spots.

(Figure below) Girdling root as tree matures.





Good structure



Poor structure

Form

- When buying a young shade tree it is important to note that the branches you see may not be present at maturity. Many lower branches will be shaded out as the tree grows, or pruned away to allow clearance for pedestrians, traffic, mowing, or other activities.
- Many nurseries prune young trees to spur crown growth. This may lead to issues that must be addressed later with corrective pruning.
- Good strong form—branch architecture—starts with branches evenly spaced along the trunk. Branches should have firm, sturdy attachments to the trunk.
- Branches with narrow angles of attachment may cause problems later.
- When several branches are growing at the same position on the trunk, the likelihood of weak attachments, compression, and cracks increases greatly.
- Branches that press against the trunk or each other signal problems. These areas of contact may become compressed, crack, or die back.
- If you desire a tree with multiple trunks, make certain that the trunks are well separated at the ground line. Remember, trunks expand in diameter as they grow. Two trunks may be slightly separated when small, but as they grow the trunks will squeeze together.
- When planting remove only broken or torn branches to allow the tree to recover from the stress of transplanting.
- Many architectural issues can be addressed through corrective pruning or training. Begin corrective pruning one year after planting and space over several years.

What Is a Certified Arborist?

ISA Certified Arborists® are individuals who have proven a level of knowledge in the art and science of tree care through experience and by passing a comprehensive examination developed by some of the nation's leading experts on tree care. ISA Certified Arborists must also continue their education to maintain their certification. Therefore, they are more likely to be up to date on the latest techniques in arboriculture.

Finding an Arborist

Visit [TreesAreGood.org](https://www.treesaregood.org) for free tools and to read and all brochures in this series.

- The “Find an Arborist” tool can help you locate an arborist in your area.
- The “Verify a Credential” tool enables you to confirm whether an arborist has an ISA credential.



www.isa-arbor.com • www.treesaregood.org

©2021 International Society of Arboriculture. (v02.2021)
Through research, technology, and education, the International Society of Arboriculture promotes the professional practice of arboriculture and fosters a greater worldwide awareness of the benefits of trees.

Recognizing Tree Risk

Learn to identify common tree defects that may indicate tree risk and understand how tree risk can be managed.



Trees are an important part of our world and offer a wide range of benefits. However, trees can also be liabilities. While there is no such thing as a completely safe tree, the benefits of trees far outweigh the risks. All trees have the potential to fall, but only a small number actually hit something or someone.

By understanding and addressing the risks associated with trees, you can make your property safer and prolong the lives of your trees.

It is a tree owner's responsibility to ensure the safety of others when around trees on their property. This brochure provides some tips for identifying and managing common defects associated with tree risk. However, evaluating the seriousness of these defects is best done by a professional arborist. Regular tree care performed by an ISA Certified Arborist® will provide an opportunity to identify trees that have defects and unacceptable risk levels. Once the risk is identified, steps may be taken to reduce the likelihood of an incident or damage.



Tree Risk Checklist

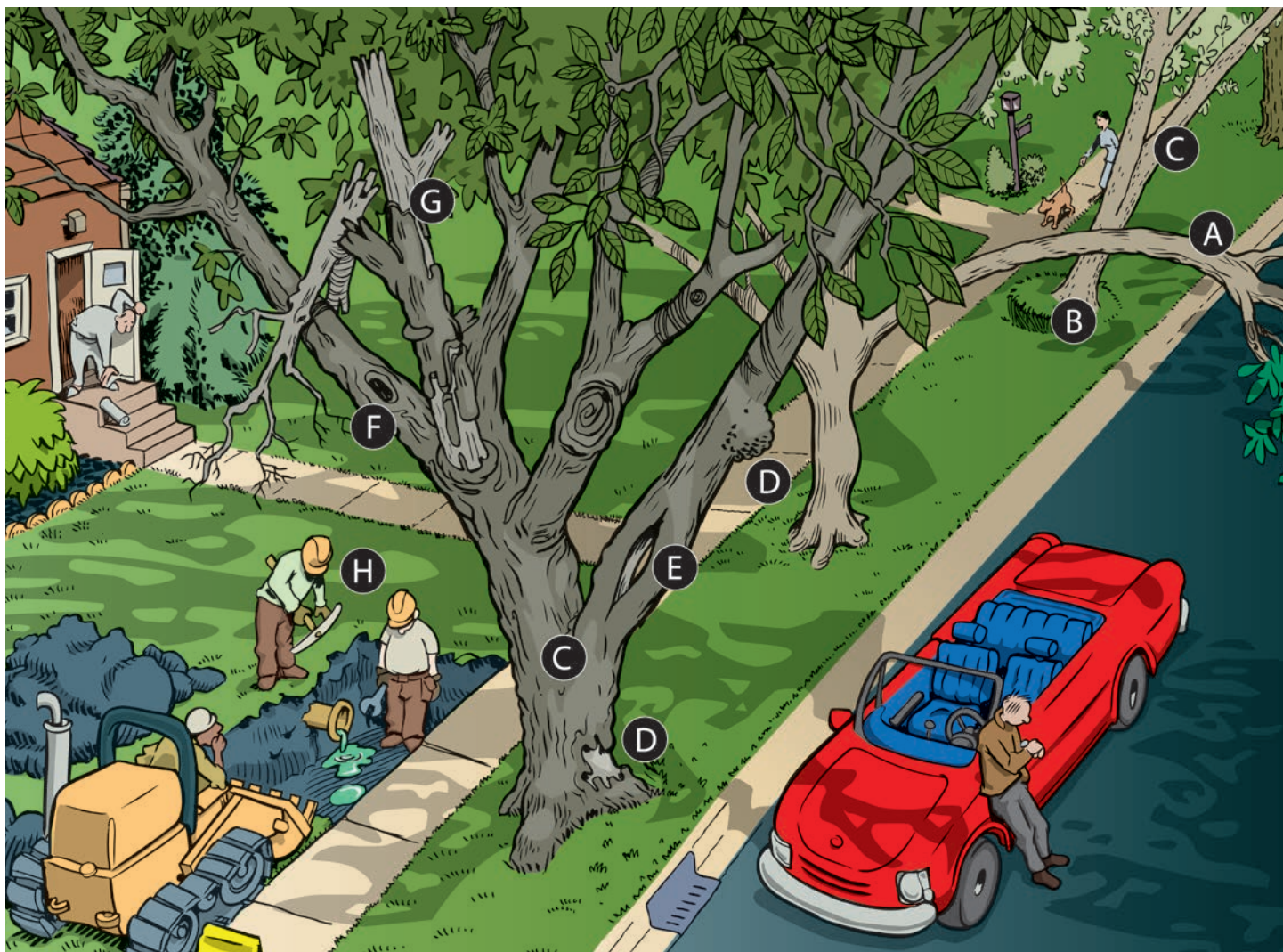
Consider these questions when assessing a tree:

- Are there large dead branches?
- Are there detached, hanging branches?
- Have any branches fallen from the tree?
- Is there loose bark on the trunk?
- Are there cracks or splits in the trunk or where branches are attached?
- Has the trunk developed unusually?
- Are there cavities or rotten wood along the trunk or in major branches?
- Are mushrooms present at the base of or under the tree?
- Has the area recently been altered by construction, changes in soil level, or installations of lawns or pavement?
- Have the leaves developed an unusual yellow color or do they seem smaller in size?
- Has the tree been topped or heavily pruned?

Trees and Utility Lines

Additional consequences can result from trees that fall onto utility lines. Not only can these trees injure people or property near the lines, but they can also hit a conductor and cause power outages or surges, fires, and other damage.

A tree with potential to fall into a utility line presents a very serious situation. Never attempt to remove branches or any tree part from or near power lines, and never go near downed power lines! These lines are especially dangerous, as they could still be conducting electricity. If you see tree parts in contact with utility lines, call your local electricity provider.



Defects in Urban Trees

The following are defects or signs of possible defects in urban trees (see figure):

A: Poor taper:

Branches or stems with their weight concentrated near the end are more prone to failure.

B: Root failure:

Cracks or separations in the soil may indicate soil heaving from excessive movement of the roots. This can be a warning sign for failure, especially if the tree is leaning.

C: Codominant stems (split trunk):

Can often be failure points. Multiple branch attachments at one point on a stem can also be considered a defect.

D: Externally visible defects:

Includes cankers and wounds. Each could be minor or the start of a significant problem; further investigation may be warranted.

E: Cracks or splits:

Watch for longitudinal cracks or splits on the trunk, major branches, or branch unions.

F: External signs of decay:

Asymmetric shapes may be caused by the tree's formation of reaction wood and may be an indication of an internal problem. Other, more obvious signs of decay include the presence of fungal fruiting bodies and cavities.

G: Dead branches:

Dead branches within the canopy of a tree are probably the most obvious potential hazards. The risk of damage or injury depends on the size of the dead branch and distance from any potential targets.

H: Human-caused defects:

Wounds, weak or damaged limbs, root loss, and decay may be the result of construction, grade changes, soil compaction, poor pruning, or other misguided practices.

Ensuring Quality Care

Trees are assets to your home and the community, and they deserve the best possible care. If you answered "yes" to any of the questions in the tree risk checklist on the previous page or see any of the defects depicted in this brochure, your tree should be examined by an ISA Certified Arborist.

Managing Tree Risk

An ISA Certified Arborist can help homeowners manage trees and provide treatments that may help reduce the risk associated with certain trees.

An arborist familiar with tree risk assessment may suggest one or more of the following:

- Prune the tree and remove the defective branches. Inappropriate pruning may weaken the tree. Pruning work is best done by an ISA Certified Arborist.
- Cable and brace the tree. Provide physical support for weak branches and stems to increase their strength and stability. Such supports are not guarantees against failure.
- Provide routine care. Mature trees need routine care in the form of water, nutrients (in some cases), mulch, pruning, and, in some cases, nutrients, as dictated by their structure and the season.
- Remove the tree. Some trees with unacceptable levels of risk are best removed. If possible, plant an appropriate new tree as a replacement.

Recognizing and reducing tree risk not only increases the safety of your property and that of your neighbors, but also improves trees' health and may increase their longevity.



What Is a Certified Arborist?

ISA Certified Arborists® are individuals who have proven a level of knowledge in the art and science of tree care through experience and by passing a comprehensive examination developed by some of the nation's leading experts on tree care. ISA Certified Arborists must also continue their education to maintain their certification. Therefore, they are more likely to be up to date on the latest techniques in arboriculture.

Finding an Arborist

Visit TreesAreGood.org for free tools:

- The "Find an Arborist" tool can help you locate an arborist in your area.
- The "Verify a Credential" tool enables you to confirm whether an arborist has an ISA credential.

Be an Informed Consumer

One of the best methods to use in choosing an arborist is to educate yourself about some of the basic principles of tree care. Visit TreesAreGood.org to read and download all brochures in this series.



www.isa-arbor.com • www.treesaregood.org

©2021 International Society of Arboriculture. (v02.2021)
Through research, technology, and education, the International Society of Arboriculture promotes the professional practice of arboriculture and fosters a greater worldwide awareness of the benefits of trees.

Avoiding Tree Damage During Construction



Possible ways in which existing trees may be damaged during a construction project and methods for planning and facilitating the prevention of tree damage.

The Importance of Engaging an Arborist

The process of protecting trees during construction is not always easy, but the benefits can be substantial. Larger trees provide aesthetic beauty, financial value, and benefits to the environment and quality of life.

Construction damage to trees may take many years to impact the tree and can be deadly. Small injuries accumulating over time can start a hard-to-reverse decline.

To ensure that trees will survive and thrive after construction, it is important to work with an ISA Certified Arborist® from the beginning of the planning phase through to the end of the post-construction phase of the project. The sooner and more involved an ISA Certified Arborist is in the project, the greater chance of maintaining or improving tree health and survival.

The Critical Root Zone and Tree Protection Zone

A tree's tolerance for damage depends on its age, species, condition, and other factors. One of the most important factors is the tree's root zone.

A tree's root zone can extend far from the trunk and outer branch spread. The portion of the root zone that is essential for tree health and stability is called the critical root zone.

One of the early steps in protecting trees and the critical root zone during construction is to have an ISA Certified Arborist define a tree protection zone. This area should have specific limitations to construction activity and requirements for protection.

Finding the balance between project requirements and protection zones requires an ISA Certified Arborist and a cooperative construction team.



How Construction Can Damage or Kill Trees

Root Damage: Grading, trenching, paving, altering drainage patterns, and adding or removing soil within a tree's critical root zone damages tree roots. If too many roots are damaged, the tree will be affected.

Soil Compaction: Heavy construction equipment increases soil density (compaction), slowing root growth, limiting water penetration, and decreasing oxygen needed for root survival.



Physical Injury to Trunk Crown and Root Collar:

Construction equipment can break branches, tear bark, and wound the trunk. These wounds weaken the tree and allow the entry of decay-causing fungi. The base of the tree and its root collar are especially vulnerable to damage from machinery and soil or debris placed over the lower trunk.

Heat and Chemical Damage: Bark and foliage are easily damaged by the heat from running machinery and burning material. When spilled fuels and runoff from cleaning concrete delivery vehicles seep into the soil, soil chemistry changes and root growth and function are reduced.

Removal of Supporting Trees: Closely spaced trees grow as a community, supporting and protecting each other. Removing some of the trees exposes the remaining trees to sunscald stress or structural failure.

Getting Advice

To protect your trees during construction, engage an ISA Certified Arborist to be a member of the project design team. This arborist is typically the only member of the team that represents the interest of the trees. Have the arborist work on any decisions that impact trees throughout all the phases of the project.

Planning and Design Phase

Ensure the ISA Certified Arborist is involved early in the planning phase of construction. Minor design changes can result in significant reductions in tree damage and make a great difference in whether a tree will survive.

There are many options an arborist might suggest during the planning and design phase to protect trees: driveways and walls can be realigned; grading can be reconfigured; structures such as footings or paving can be designed to bridge over roots; and utilities can be rerouted or tunneled under roots.

All tree protection requirements determined by the arborist should be incorporated into the project plans.

Pre-Construction Phase

Prior to the start of work, an arborist can recommend where tree protection fences should be installed. Fences should have signs attached to inform people of why they should stay out and who to contact if they need to get in.

If machinery must come close to a tree trunk, an arborist can recommend how the trunk can be protected from damage with additional protection materials.

If there will be trenching, grading or other excavation near trees that may damage roots, an arborist can prune roots out of the way before excavation, or cleanly cut them before any damage is done.

If there is significant root loss or if construction is done during dry periods, an arborist can develop a temporary irrigation system. This may be from nearby hoses or water may need to be trucked into the site.

An ISA Certified Arborist can also help create a plant health care program that will monitor and treat stress, diseases and insect pests throughout all phases of construction.



www.isa-arbor.com • www.treesaregood.org

©2021 International Society of Arboriculture. (v02.2021)
Through research, technology, and education, the International Society of Arboriculture promotes the professional practice of arboriculture and fosters a greater worldwide awareness of the benefits of trees.

Construction Phase

During the construction phase, trees and any required protection zones must be monitored by an arborist regularly. Having access to the construction site allows the arborist to confirm the requirements are properly being followed.

Construction plans may change often and the arborist can make adjustments to protect trees as the project changes. Flexibility and establishing trust between all team members is critical to the successful preservation of large trees.

Post-Construction Phase

At the end of the project, installation of new plantings, irrigation, lighting, and planting soil are often made close to existing trees. These new changes in a tree's environment can have a devastating impact on the tree.

Despite the best tree protection plans and intentions, construction can result in unintended damage that may take years to become apparent. An ISA Certified Arborist can develop a post-construction maintenance plan to help trees recover and adapt to their new environment.

What Is a Certified Arborist?

ISA Certified Arborists are individuals who have proven a level of knowledge in the art and science of tree care through experience and by passing a comprehensive examination developed by some of the nation's leading experts on tree care. ISA Certified Arborists must also continue their education to maintain their certification. Therefore, they are more likely to be up to date on the latest techniques in arboriculture.

Finding an Arborist

Visit TreesAreGood.org for free tools:

- The "Find an Arborist" tool can help you locate an arborist in your area.
- The "Verify a Credential" tool enables you to confirm whether an arborist has an ISA credential.

Be an Informed Consumer

One of the best methods to use in choosing an arborist is to educate yourself about some of the basic principles of tree care. Visit TreesAreGood.org to read and download all brochures in this series.

Treatment of Trees Damaged by Construction

Addresses tree damage assessment and remedial treatments that may preserve trees damaged during construction.



Construction can be devastating to surrounding trees if measures are not taken. Remedial treatments may save some trees, but immediate implementation is critical. An ISA Certified Arborist® can assess tree viability and risk potential to recommend treatment options for construction-damaged trees.

Damage Caused by Construction

- Physical injury to the trunk and crown.
- Soil compaction in the root zone.
- Severed roots.
- Smothered roots from added fill soil.
- Increased wind and sunlight exposure.
- Stress due to grade and drainage changes.

Inspection and Assessment

- An ISA Certified Arborist should check for potential risk to the structure and stability of a tree.
- A risk assessment may involve visual inspection, or instruments may be used to check for decay.
- Identified risk can be reduced or eliminated by removing an unsafe limb, pruning to reduce weight, or installing cables or braces for structural support.
- The tree should be removed if there is doubt about its structural integrity and the risk cannot be mitigated.



Improving Aeration of the Root Zone

Soil compaction and grade changes can reduce soil oxygen and limit water movement in the tree's root zone. If soil aeration can be improved, root growth and water uptake can be enhanced.

Aeration of the root zone may improve root health and water and mineral uptake. One effective aeration method employs a high-pressure, air-excitation device, which pulverizes soil with minimal detrimental impact to roots (see figure above). This process alone can be beneficial, or it may be combined with incorporation of soil additives and top dressing with organic mulch.

What About Fertilization?

- Fertilization should be limited immediately following construction damage.
- Salts associated with quick-release fertilizers can draw water out of roots and into the soil.
- Excess nitrogen can stimulate top growth at the expense of root growth. The amount of nitrogen added should be based on soil or foliar nutrient analysis.
- Once the tree has recovered, fertilization should be based on the nutritional needs of the tree on its particular site.

Treating Trunk and Crown Injuries

Branch Damage

- Remove split, torn, or broken branches. Remove dead or diseased limbs from the crown.
- Generally do not reduce tree canopies to compensate for root loss; however, there are some cases where this is the best option.
- There is no conclusive research to support the practice of routine thinning for reducing water stress.

Treating Damaged Bark and Trunk Wounds

- Often the bark may be damaged on the trunk or lower branches. Remove the loose bark.
- Jagged edges can be cut away with a sharp knife.
- Be sure not to cut living tissues.

Wound Dressings

Research has shown that wound dressings do not reduce decay or speed up wound closure and rarely prevent insect or disease infestations. Most experts recommend not using wound dressings. If a dressing must be used for cosmetic purposes, use only a thin coating of a nontoxic material.

Mulching

Apply a 2-4 inch (5-10 cm) layer of organic mulch such as wood chips, shredded bark, or pine needles over a tree's root system to enhance root growth. Mulch helps condition the soil, moderate soil temperatures, maintain moisture, and reduce competition from weeds and grass. The mulch should extend as far out from the tree as practical for the landscape site. (See "Proper Mulching Techniques" brochure for more information.)

Irrigation and Drainage

One of the most important tree maintenance procedures following construction damage is to maintain an adequate, but not excessive, supply of water to the root zone. Water trees as needed, especially during the dry summer months.

A long, slow soak over the entire root zone is the preferred method of watering. Avoid frequent, shallow watering or overwatering. If the soil is poorly drained, the irrigation level should be reduced to avoid saturating the soil, or drainage should be improved.

Cabling and Bracing

If branches or tree trunks are likely to fail, an ISA Certified Arborist may be able to install cables or bracing rods. If cables or braces are installed, they must be inspected regularly. The amount of added security offered by the installation of support hardware is limited. Not all weak limbs are candidates for these measures.

Monitoring for Decline and Risk

- Often decline in trees can take years to be easily seen. Monitoring trees helps to identify issues sooner.
- Symptoms of decline include smaller and fewer leaves, dieback in the crown of the tree, and premature fall color.
- Stressed trees are more prone to attack by certain diseases and insect pests.
- Severe damage and decline may lead to defects and decay.
- Consult with an ISA Certified Arborist for an assessment if you are concerned with your tree's health or structural integrity.

What Is a Certified Arborist?

ISA Certified Arborists® are individuals who have proven a level of knowledge in the art and science of tree care through experience and by passing a comprehensive examination developed by some of the nation's leading experts on tree care. ISA Certified Arborists must also continue their education to maintain their certification. Therefore, they are more likely to be up to date on the latest techniques in arboriculture.

Finding an Arborist

Visit [TreesAreGood.org](https://www.treesaregood.org) for free tools:

- The "Find an Arborist" tool can help you locate an arborist in your area.
- The "Verify a Credential" tool enables you to confirm whether an arborist has an ISA credential.

Be an Informed Consumer

One of the best methods to use in choosing an arborist is to educate yourself about some of the basic principles of tree care. Visit [TreesAreGood.org](https://www.treesaregood.org) to read and download all brochures in this series.



www.isa-arbor.com • www.treesaregood.org

©2021 International Society of Arboriculture. (v03.2021)
Through research, technology, and education, the International Society of Arboriculture promotes the professional practice of arboriculture and fosters a greater worldwide awareness of the benefits of trees.

Storm-Related Tree Damage

Steps to take before and after severe storms that may damage trees.



Prevention

While it is impossible to prevent all storm-related damage to trees, an ISA Certified Arborist® can help identify potential areas of concern, and help prepare your trees for inclement weather. Preventative tree care may include:

- Training your trees to improve their form.
- Identifying branch, trunk, and root defects that may weaken a tree, and recommending ways to manage them.
- Removing dead or defective branches.
- Correcting problems caused by improper care practices, such as topping, that have occurred in the past.
- Installing a lightning protection system to protect your high value trees.



How Storms Damage Trees

Severe weather can have a lasting impact on your home and its surrounding landscape.

During a storm, the failure of part or all of a tree may cause significant damage to a property. For example:

- Strong winds can break tree branches and even uproot trees, particularly when combined with the softening of soils from heavy rain or snow storms.
- Heavy snow or ice loads on trees may cause tree branches to break under the added weight.
- Lightning strikes generate heat that vaporizes water within the tree, causing wood to rupture and bark to dislodge.

What to Do After Severe Storm Damage?

1: Take Safety Precautions

Before getting ready to assess trees after a storm, it is important to consider the potential hazards:

- Broken limbs hanging overhead or uprooted trees fallen and resting in other trees, on roofs or other built structures may continue to move during and after the storm has passed.
- Trees and limbs under tension may react unexpectedly when cut or moved.
- Damaged trees may be in contact directly or indirectly with electrical wires which have the potential to cause injury or death from electrocution. Removing trees or branches in close proximity to electrical lines or structures requires knowledge and experience.

When possible, stay clear of the area around damaged trees and call the local emergency services, utility company, or an arborist.

2: Assess the Damage

Following damage from a storm, an arborist can assess your tree(s) and advise on the:

- Extent of damages and whether or not the tree(s) can be saved or require removal.
- Present or potential hazards associated with the damaged tree(s).

After severe storms assessments of tree damage should also take into account trees seemingly not damaged by the storm, particularly any larger trees near to locations of people or property. An ISA Certified Arborist® should check such trees for cracks in trunks or limbs, hanging branches, or soil heaving.

3: Resist the Urge to Do It Yourself

Homeowners may be tempted to begin tree debris cleanup prior to consulting an ISA Certified Arborist; however, there are multiple potential hazards associated with tree damage repair or removal work, including:

- Having to work at height.
- Retrieving fallen tree parts on buildings or in contact with utility services.
- Operating tree-cutting machinery and removal equipment.

These and other such tree work operations—especially debris cleanup—are inherently dangerous and should be carried out by a professional arborist.

4: Hire an Arborist

Professional arborists have the experience and equipment needed to safely and efficiently remove or prune severely damaged trees and haul away unwanted debris.

ISA Certified Arborists are individuals who have demonstrated a high level of knowledge and experience in tree care. They can help assess the extent of the damage caused by a storm and help you decide what action is appropriate.



What Is a Certified Arborist?

ISA Certified Arborists are individuals who have proven a level of knowledge in the art and science of tree care through experience and by passing a comprehensive examination developed by some of the nation's leading experts on tree care. ISA Certified Arborists must also continue their education to maintain their certification. Therefore, they are more likely to be up to date on the latest techniques in arboriculture.

Finding an Arborist

Visit [TreesAreGood.org](https://www.treesaregood.org) for free tools:

- The “Find an Arborist” tool can help you locate an arborist in your area.
- The “Verify a Credential” tool enables you to confirm whether an arborist has an ISA credential.

Be an Informed Consumer

One of the best methods to use in choosing an arborist is to educate yourself about some of the basic principles of tree care. Visit [TreesAreGood.org](https://www.treesaregood.org) to read and download all brochures in this series.



www.isa-arbor.com • www.treesaregood.org

©2021 International Society of Arboriculture. (v02.2021)
Through research, technology, and education, the International Society of Arboriculture promotes the professional practice of arboriculture and fosters a greater worldwide awareness of the benefits of trees.

Plant Health Care

Learn what plant health care means, what its implementation involves, and how trees and shrubs benefit from it.



Proper plant health involves monitoring and using preventative treatments to ensure your trees stay healthy. Discolored leaves, dead branches, or early leaf drop are all symptoms that may require contacting an arborist.

Sometimes the cause of concern is a minor problem, other times the problem is more complex and requires a remedy. Unfortunately, if the problem has gone undetected for too long, removal may be the only option.

The Solution: Plant Health Care

To give property owners more options, arborists created Plant Health Care (PHC) programs. The objective of PHC is to maintain or improve the landscape's appearance, vitality, and safety using the most effective and environmentally sensitive practices and treatments available. PHC involves routine monitoring, preventive treatment, and a working relationship between the arborist and the property owner.

Why Plant Health Care, Not Tree Health Care?

Trees share your home's landscape with turfgrasses, shrubs, and other plants, all of which are bedded in the same soil. The roots of all the plants intermingle and compete for water and nutrients. The roots of a single mature tree may extend well into your lawn or flower beds.

Every treatment applied to the lawn can impact the appearance and vitality of a tree. Conversely, treatments applied to a tree can influence the appearance and vitality of the underlying turfgrass. The care of each plant in a landscape can affect the health of every plant in the landscape.

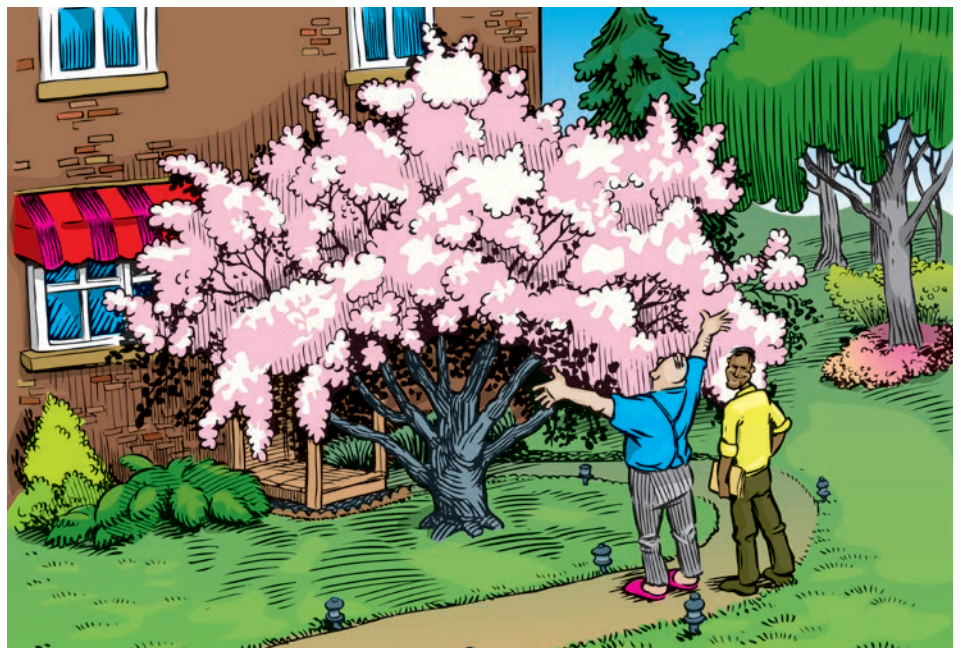
What Does a Tree and Shrub PHC Program Cover?

Just like no two landscapes are the same, and client objectives can vary, there is no standard PHC program; however, PHC programs have common features.

PHC involves monitoring tree and shrub health, which allows for problems to be detected and managed before they become serious. The monitoring may be as simple as annual visits or it may involve monthly or more frequent inspections of your trees and shrubs. The monitoring frequency and complexity of your PHC program depends on the size and diversity of your landscape, as well as your particular landscape goals.

If a problem or potential problem is detected during a monitoring visit, your arborist will work with you to develop a solution such as reducing lawn irrigation frequency so soil conditions aren't too moist for tree roots.

Other solutions include more detailed suggestions, such as pruning or spot applications of pesticides. Your arborist will provide you with information about your trees and shrubs that will let you make appropriate management decisions for your budget and goals.



Why Contact an Arborist for Plant Health Care?

- Arborists have the experience and training to detect potential tree and shrub problems before they become life-threatening or hazardous.
- Arborists can prescribe services for trees and shrubs to prevent problems.
- Arborists can consult with other landscape and lawn care services to coordinate treatments.

The size and longevity of trees and shrubs warrant special attention. Annual plants can be replaced in a few short weeks and a lawn in a single growing season, but it can take a lifetime to replace a mature tree.

How to Choose an Arborist

Visit TreesAreGood.org and use the “Find an Arborist” tool to locate an arborist in your area. You can also check with professional organizations, such as the International Society of Arboriculture (ISA), the Tree Care Industry Association (TCIA), or the American Society of Consulting Arborists (ASCA).

Ask for proof of insurance and references, and don't hesitate to check them. Remember, tree care is a substantial, long-lasting investment in your valuable assets; take the time to select a knowledgeable professional to care for your landscape.



What Will a PHC Program Cost?

Because each program is individually designed to fit the needs of a particular landscape, accurate pricing will depend on findings from an arborist's site visit and assessment. You may have an interest in developing a plan for a few key trees in your landscape, or have the entire landscape placed on a program.

PHC programs can also be structured in different ways. For example, some programs charge a fee for monitoring and bill each treatment separately. Other programs have an annual fee that covers all monitoring visits for the season as well as many potential treatments. These more comprehensive programs provide peace of mind in knowing that treatments for most potential problems are already covered by the program without additional charges. Individualized programs and flexibility are at the heart of PHC. You will find that your arborist can design a Plant Health Care program that fits your goals and budget.

What Is a Certified Arborist?

ISA Certified Arborists® are individuals who have proven a level of knowledge in the art and science of tree care through experience and by passing a comprehensive examination developed by some of the nation's leading experts on tree care. ISA Certified Arborists must also continue their education to maintain their certification. Therefore, they are more likely to be up to date on the latest techniques in arboriculture.

Finding an Arborist

Visit TreesAreGood.org for free tools and to read all brochures in this series.

- The “Find an Arborist” tool can help you locate an arborist in your area.
- The “Verify a Credential” tool enables you to confirm whether an arborist has an ISA credential.



www.isa-arbor.com • www.treesaregood.org

©2021 International Society of Arboriculture. (v02.2021)
Through research, technology, and education, the International Society of Arboriculture promotes the professional practice of arboriculture and fosters a greater worldwide awareness of the benefits of trees.

Trees and Turf

Tree and grass selection, competition among plants, maintenance practices, and special situations must all be considered when trees and turf share a landscape.



Trees and Turf

Woody plants and turfgrasses (uniform, long-lived ground cover) are critical design elements in urban and suburban landscapes. Trees and turf offer distinct personal, functional, and environmental benefits. The intended benefits of these plants may never be obtained if potential incompatibilities are not addressed.

Conflicts

Undesirable effects of tree and turfgrass conflicts include:

- Thinning grass under large shade trees where turf cannot get enough sunlight or water.
- Large tree roots that hinder mowing and conflict with healthy turf maintenance.
- Trees badly damaged by lawn mowers or string trimmers when turf is too close to tree trunks.
- Young trees that don't seem to grow due to turf out-competing the tree for resources.

Benefits

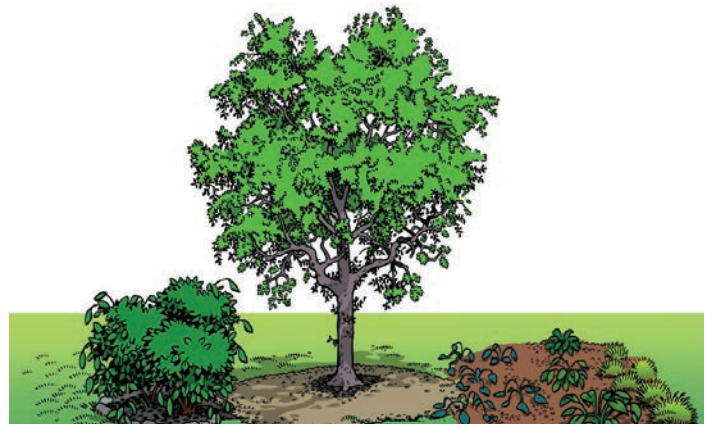
Turfgrasses may provide some of the same environmental benefits as trees, such as:

- Taking carbon dioxide and producing oxygen via photosynthesis.
- Cooling the air by changing water into water vapor.
- Filtering dust and particulates; entrapping air-polluting gases; and reducing erosion and runoff.

Selection

When trees and turf are used in the same area, extra attention must be given to plant material selection to ensure tree and lawn compatibility. Grass is generally a sun-loving plant. Most species will not grow well in areas that get less than 50% open sunlight. However, new shade-tolerant grass varieties are being introduced into the market.

In areas where the lawn is the primary design feature, select woody plants that are small, have open canopies (to allow sunlight to penetrate to the ground), or have a high canopy. Select trees that do not root near the soil surface. Surface rooting is most prevalent where shallow topsoil or clay soils are present.



Competition

All plants require sunlight, water, and rooting space for growth. In the landscape, plants compete with their neighbors for these resources. Some plants even release chemicals in the soil to restrict growth of nearby plants. A landscape design should provide adequate space for plants (keeping size at maturity in mind) to minimize competition.

While shading is the most obvious form of competition, roots also compete below ground for water, nutrients, and space. The majority of fine, water-absorbing tree and grass roots are in the top 6 inches (15 cm) of soil. In this region, grass roots ordinarily occupy a much greater percentage of the soil volume than tree roots and absorb more of the available water and nutrients (especially around young trees). However, grass root density is often much lower in areas where trees were established first. In these situations, shading and other factors help tree roots more competitive.

Competition is especially important when transplanting, seeding, or sodding. The newest plant in the area must be given special treatment to become established. Competing sod should be removed from around transplanted trees and shrubs. Water should be applied to new transplants and seedlings as needed.

Mulching is the best alternative to turf around trees. A 2–4 inch (5–10 cm) layer of wood chips, bark, or other organic material over the soil beneath the tree's drip line is recommended because it:

- Helps retain soil moisture.
- Helps reduce weeds and grass competition.
- Increases soil biology and fertility as it decomposes.
- Protects the trunk from serious injuries caused by lawn care equipment.
- Improves soil structure (better aeration, temperature, and moisture conditions).

Remember to leave a few inches of mulch-free area at the base of the tree to reduce moist bark and prevent decay.

Maintenance Practices

Trees and turf have different requirements. Given the close proximity of tree and turf roots, treatment of one plant may damage the other.

Herbicides used in lawn care may cause severe damage to trees when misapplied. Herbicide drift on windy days and vaporization on hot days can cause damage to non-target woody plants. While most herbicides do not kill tree roots, some, such as soil sterilants, do. Check herbicide labels for a product's potential to harm trees.

Fertilizer applied to one plant will also be absorbed by the roots of a nearby plant. This can be a good thing, but excessive fertilization of either trees or turf can result in excessive aboveground growth or reduced disease and pest resistance.

Lawn watering is beneficial to trees if done correctly. Trees need, on average, the equivalent of 1 inch (2.5 cm) of rain every 7–10 days, depending on the species. Water prior to sunrise or after sunset, if possible. Frequent, shallow watering does not meet the needs of either trees or turf, and can be harmful to both.

Allow turf to grow to the top of its recommended mowing height to increase health and rooting depth and decrease irrigation, fertilization, and weed control requirements. Mowing no more than one-third of the grass blade's height and letting the clippings remain on the lawn promotes a healthy and vigorous lawn. Encourage communication between tree and lawn care professionals to prevent duplication of maintenance activities.



Special Situations

- **Placing fill soil around existing trees.** Fill soil is frequently added around existing mature trees to cover roots and re-establish turf. Fill soil can reduce soil oxygen levels and suffocate tree roots. Consult an ISA Certified Arborist® before adding soil over tree roots.
- **Establishing lawns around existing trees.** Soil preparation prior to seeding can disrupt the upper 4–6 inches (10–15 cm) of topsoil. This may result in significant tree root damage and decline of the tree canopy.
- **Lawn watering in arid sites.** In arid regions, the watering that is required to maintain turf is especially harmful to tree species adapted to dry climates. Excess soil moisture encourages root rot that can kill trees or increase the likelihood of uprooting by excessive winds.

Sparse turfgrass growing around mower-scarred, weak trees does not need to be a common sight in the landscape. With proper planning, selection, and management, the benefits of both trees and turf can be readily achieved.

What Is a Certified Arborist?

ISA Certified Arborists are individuals who have proven a level of knowledge in the art and science of tree care through experience and by passing a comprehensive examination developed by some of the nation's leading experts on tree care. ISA Certified Arborists must also continue their education to maintain their certification. Therefore, they are more likely to be up to date on the latest techniques in arboriculture.

Finding an Arborist

Visit [TreesAreGood.org](https://www.treesaregood.org) for free tools and to read and download all brochures in this series.

- The "Find an Arborist" tool can help you locate an arborist in your area.
- The "Verify a Credential" tool enables you to confirm whether an arborist has an ISA credential.



www.isa-arbor.com • www.treesaregood.org

©2021 International Society of Arboriculture. (v02.2021)
Through research, technology, and education, the International Society of Arboriculture promotes the professional practice of arboriculture and fosters a greater worldwide awareness of the benefits of trees.



TREES ARE GOOD



Brought to you by ISA



SEARCH

MENU

Shop

- > Brochures
- > Gifts & Apparel
- > Children's Products

[Home](#) > [Shop](#)



Shop

Updated apparel coming soon!



[ISA Beanie](#)



[ISA Low Profile Ball Cap](#)



[ISA Trucker Cap](#)



[Why Hire an Arborist? brochure](#)



[Why Topping Hurts Trees brochure](#)



[Recognizing Tree Risk brochure](#)



[New Tree Planting brochure](#)



[Tree Values brochure](#)



[Benefits of Trees brochure](#)



[Pruning Young Trees brochure](#)



[Pruning Mature Trees brochure](#)



[Buying High Quality Trees brochure](#)



[Mature Tree Care brochure](#)



[Plant Health Care brochure](#)



[Insect and Disease Problems brochure](#)





[Storm-Related Tree Damage](#)



[Tree Selection brochure](#)



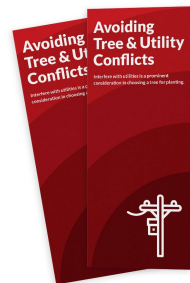
[Treatment of Trees Damaged by Construction brochure](#)



[Palms brochure](#)



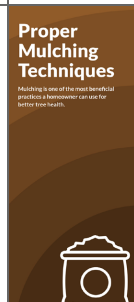
[Avoiding Tree Damage During Construction brochure](#)



[Avoiding Tree and Utility Conflicts brochure](#)

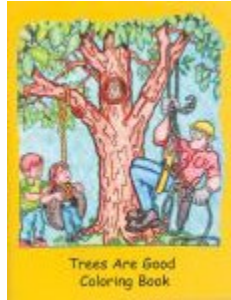


[Tree Owner's Manual](#)



[Proper Mulching Techniques brochure](#)

[Trees and Turf brochure](#)



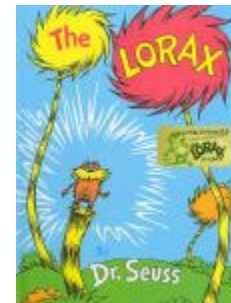
TreesAreGood™ Coloring Book



I Can Name 50 Trees Today!



26 Things That Bug Me - A Special ABC, Second Edition



The Lorax



Up In The Leaves



International Society of Arboriculture
www.isa-arbor.com • p. +1 678.367.0981 • isa@isa-arbor.com

*©International Society of Arboriculture 2009-2023
Email comments and questions to ISA
Tuesday, September 26, 2023 7:51:26 PM (EST/ISA Headquarters Time)
Please click here to view our privacy policy.*



Brought to you by ISA



SEARCH

MENU



Username:

Password:

[Login](#)

[Cancel](#)

Remember Login

[Register](#)

[Reset Password](#)



International Society of Arboriculture
www.isa-arbor.com • p. +1 678.367.0981 • isa@isa-arbor.com

©International Society of Arboriculture 2009-2023
Email comments and questions to ISA
Tuesday, September 26, 2023 7:51:40 PM (EST/ISA Headquarters Time)
[Please click here to view our privacy policy.](#)

Proper Mulching Techniques

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



Mulches are applied to the soil surface to maintain moisture and improve soil conditions. However, if misapplied, mulch may have little, or even negative, impact on trees.

Benefits of Proper Mulching

- Reduces soil moisture loss through evaporation.
- Controls weed germination and growth.
- Insulates soil, protecting roots from extreme summer and winter temperatures.
- Improves soil biology, aeration, structure (aggregation of soil particles), and drainage over time.
- Increases soil fertility as certain mulch types decompose.
- Inhibits certain plant diseases.
- Reduces the likelihood of tree damage from string trimmers and lawn mowers.
- Gives planting beds a uniform, 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 fallen leaves and other organic materials that organisms break down to release nutrients into the soil. This environment is optimal for root growth and mineral uptake.

Urban landscapes and new developments, however, are typically harsher environments with poor-quality soil, reduced organic matter, and large fluctuations in soil temperature and moisture. Many benefits of the natural environment can be replicated, while maintaining a formal appearance, with the application of an organic mulch.



Types of Mulch

Organic Mulch

- Examples include wood chips, pine needles, hardwood and softwood bark, cocoa hulls, leaves, compost mixes, and a variety of other products usually derived from plants.
- Decomposes in the landscape at different rates depending on the material, climate, and soil microorganisms present.
- Requires more replenishing depending on how fast it decomposes.

Inorganic Mulch

- Examples include various types of stone, lava rock, shredded rubber, and other materials.
- Does not decompose or need to be replenished often.
- Does not improve soil structure or provide nutrients.

Not Too Much!

Too much mulch can be harmful. The recommended mulching depth is 2–4 inches (5–10 cm). Unfortunately, many landscapes are falling victim to a plague of over mulching.

“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.

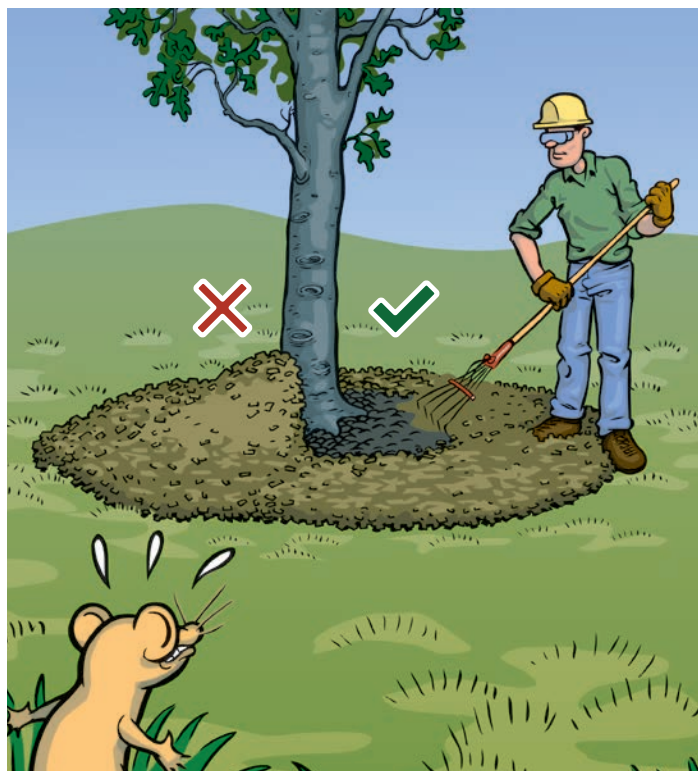
Problems Associated with Improper Mulching

- Applying mulch against the trunk or stems of plants can soften the tissues, making them more susceptible to the development of insects and diseases (see figure top right).
- Mulch against the trunk can also lead to the growth of stem girdling roots. This type of root growth can reduce tree growth or eventually kill the tree.
- Thick blankets of fine mulch can become matted and may reduce the penetration of water and air.
- On wet soils, applying more than 2 inches (5 cm) of organic mulch can reduce soil drying, which can lead to excess moisture in the root zone, which can stress the plant and cause root rot. In these cases, it may be best to leave bare ground exposed or to use a thin layer of inorganic mulch.
- Some mulches, especially those containing fresh grass clippings, can affect soil pH and may eventually lead to nutrient deficiencies or toxic buildups. Anaerobic “sour” mulch may give off pungent odors, and the alcohols and organic acids that build up may be toxic to young plants.

Guidelines for Applying Mulch

The choice of mulch and the application techniques are important to the health of landscape plants. The following are guidelines for applying mulch:

- For well-drained sites, apply a 2–4 inch (5–10 cm) layer of mulch. Fine mulches, such as composed materials, should be applied in a 2–3 inch layer and coarse mulches, such as arborist wood chips, should be applied in a 3–4 inch layer.
- Apply mulch near, but not touching, the trunk and extend to the drip line, if practical. If it is not practical to apply mulch to the drip line, apply as far out as you can. Generally, a 3 foot (1 meter) radius ring is the minimum for most trees.
- If the species you are mulching has symptoms related to a pH problem, select a mulch that can aid in correcting.
- 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 (see figure top right).
- Fresh arborist wood chips, especially those that contain bark and leaves, are an excellent material to apply around trees and large shrubs.



What Is a Certified Arborist?

ISA Certified Arborists® are individuals who have proven a level of knowledge in the art and science of tree care through experience and by passing a comprehensive examination developed by some of the nation's leading experts on tree care. ISA Certified Arborists must also continue their education to maintain their certification. Therefore, they are more likely to be up to date on the latest techniques in arboriculture.

Finding an Arborist

Visit TreesAreGood.org for free tools and to all brochures in this series.

- The “Find an Arborist” tool can help you locate an arborist in your area.
- The “Verify a Credential” tool enables you to confirm whether an arborist has an ISA credential.



www.isa-arbor.com • www.treesaregood.org

©2021 International Society of Arboriculture. (v02.2021)
Through research, technology, and education, the International Society of Arboriculture promotes the professional practice of arboriculture and fosters a greater worldwide awareness of the benefits of trees.

Insect and Disease Problems

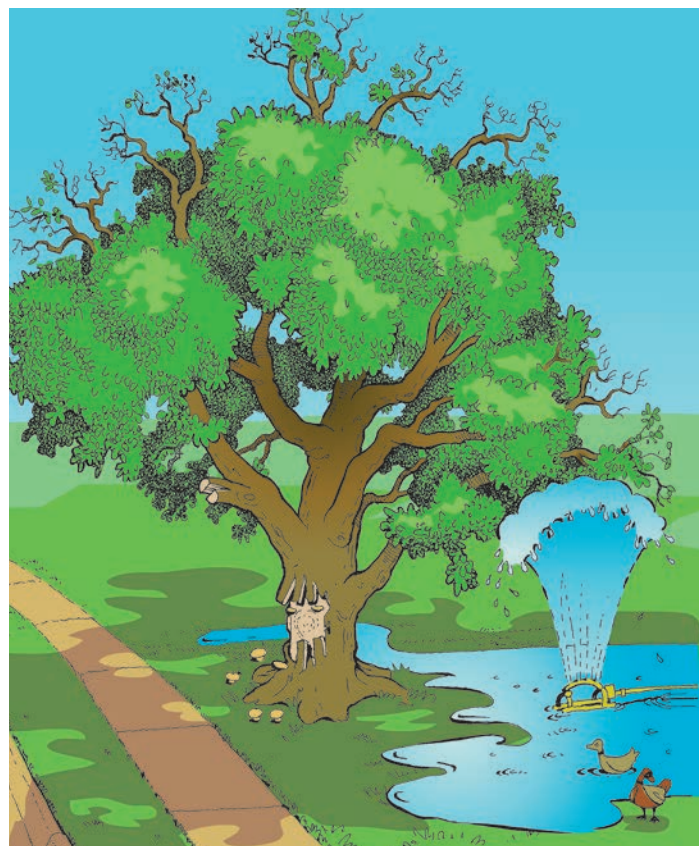
Improve your knowledge about insects and diseases that may affect tree health, and learn proper steps for diagnosis.



Insects and diseases can threaten tree health. As soon as you notice an abnormality in your tree's appearance, you should begin a careful examination of the problem. You should contact an ISA Certified Arborist® or identify the specific symptoms to try to diagnose the problem and select an appropriate treatment.

Stress

- For plants to grow and be healthy, they require sufficient light and a proper balance of nutrients. An improper balance may cause plant stress.
- Trees adjust their growth and development patterns to deal with environmental stresses.
- Sometimes the stresses trees experience in the landscape are more severe than they can handle and may make them more susceptible to certain insects and diseases.



Diagnosis

Correct diagnosis of plant health problems requires a careful examination of the situation.

1. Accurately identify the plant. Many insects and diseases are plant-specific. This helps limit the list of suspected diseases. Treatment without confirmation of the issue is often ineffective.
2. Look for a pattern of abnormality. Compare the affected plant with others on the site, especially those of the same species. Non-uniform damage patterns may indicate insects or diseases. Uniform damage over a large area usually indicates disorders caused by physical injury, poor drainage, chemical damage, or weather.
3. Carefully examine the landscape. The history of the neighboring property may reveal problems. Most living pathogens take a long time to spread, so if a large percentage of plants are affected quickly, a pathogen or insect is probably not involved.
4. Examine the roots. Brown roots may indicate dry soil or the presence of toxic chemicals. Black roots may indicate overly wet soil or the presence of root-rotting organisms.
5. Check the trunk and branches. Wounds caused by weather, fire, mechanical damage, or animals can provide entrances for pathogens and wood-rotting organisms. Large defects may indicate a potentially hazardous tree.
6. Note the position and appearance of affected leaves. Leaf damage alone is not generally sufficient to identify the pest or disease. Evidence of the affliction is needed to confirm the issue.

Insects

- Some insects cause injury and damage to trees and shrubs. Generally, the insect problem is secondary to problems brought on by a stress disorder or pathogen.
- Most insects are beneficial rather than destructive. They help with pollination or act as predators of more harmful species.
- Killing all insects without regard for their kind and function can actually be detrimental to tree health.

Insects may be divided into three categories according to their method of feeding: chewing, sucking, and boring. Insects from each group have characteristic patterns of damage that help with diagnosis.

Chewing insects eat plant tissue such as leaves, flowers, buds, roots, and twigs. Damage by these insects is often defined by uneven or broken margins on the leaves, skeletonization of the leaves, and leaf mining.

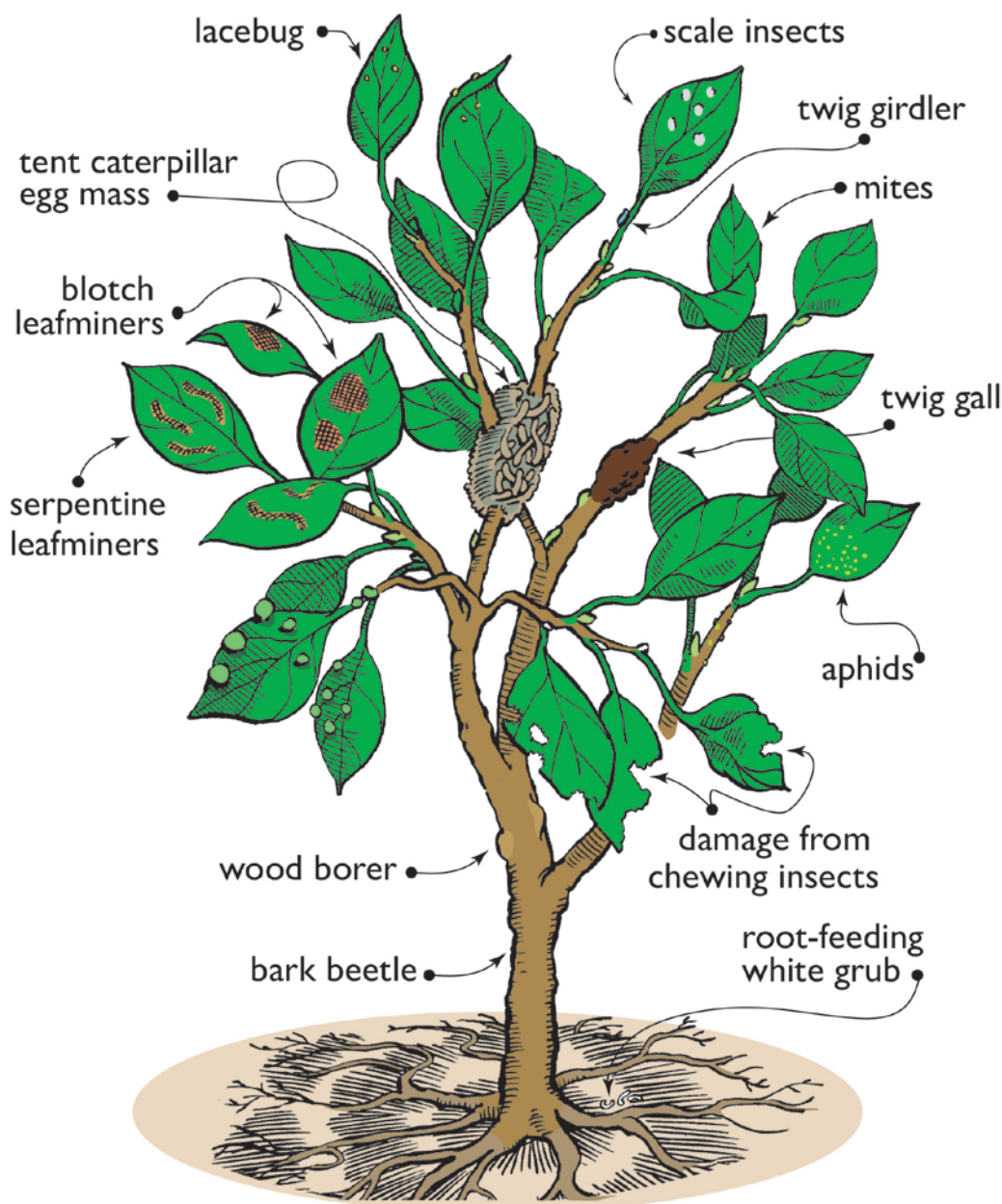
Chewing insects include beetle adults or larvae, moth larvae (caterpillars), and many other groups of insects. The damage they cause (leaf notching, leaf skeletonizing, etc.) will help in identifying the pest insect.

Sucking insects insert their beak (proboscis) into the tissues of leaves, twigs, branches, flowers, or fruit and then feed on the plant's juices. Some examples of sucking insects are aphids, mealy bugs, thrips, and leafhoppers.

Damage caused by these pests is often indicated by discoloration, drooping, wilting, leaf spots (stippling), honeydew, or general lack of vitality in the plant.

Boring insects spend time feeding beneath the bark of a tree as larvae. Some borers also kill twigs and leaves, either when adults feed or when larvae bore into stems after hatching from eggs.

Other borers, such as bark beetles, mate at or near the bark surface and lay eggs in tunnels beneath the bark.



Diseases

Three things are required for a disease to develop:

- A pathogen (disease-causing agent).
- A plant susceptibility to that particular pathogen.
- An environment suitable for disease development.

Plants vary in susceptibility to pathogens. Many disease-prevention programs focus on the use of pathogen-resistant plant varieties. Diseases can be classified into two broad categories:

- Infectious: transmittable diseases caused by microscopic living agents.
- Non-infectious: non-transmittable diseases that are inherited or the result of non-living agents.

Examples of infectious agents include fungi, fungal like microorganisms, viruses, and bacteria. Non-infectious diseases, the majority of plant problems in urban areas, can be caused by such factors as compacted soil, nutrient deficiencies, temperature extremes, vandalism, pollutants, and fluctuations in moisture. Non-infectious diseases often produce symptoms similar to those caused by infectious diseases. It is essential to distinguish between the two to determine proper treatment options.



Twisted or curled leaves may indicate viral infection, insect feeding, or exposure to herbicides. The size and color of the foliage may tell a great deal about the plant's condition.

Treatment

The treatment method used for a particular insect or disease problem will depend on the species involved, the extent of the problem, and a variety of other factors specific to the situation and local regulations. Always consult an ISA Certified Arborist® if you have any doubt about the nature of the problem or the proper treatment method to use.

What Is a Certified Arborist?

ISA Certified Arborists are individuals who have proven a level of knowledge in the art and science of tree care through experience and by passing a comprehensive examination developed by some of the nation's leading experts on tree care. ISA Certified Arborists must also continue their education to maintain their certification. Therefore, they are more likely to be up to date on the latest techniques in arboriculture.

Finding an Arborist

Visit [TreesAreGood.org](https://www.treesaregood.org) for free tools:

- The "Find an Arborist" tool can help you locate an arborist in your area.
- The "Verify a Credential" tool enables you to confirm whether an arborist has an ISA credential.

Be an Informed Consumer

One of the best methods to use in choosing an arborist is to educate yourself about some of the basic principles of tree care. Visit [TreesAreGood.org](https://www.treesaregood.org) to read and download all brochures in this series.



www.isa-arbor.com • www.treesaregood.org

©2021 International Society of Arboriculture. (v03.2021)
Through research, technology, and education, the International Society of Arboriculture promotes the professional practice of arboriculture and fosters a greater worldwide awareness of the benefits of trees.

Mature Tree Care

Learn procedures specific to a routine maintenance program for mature tree care, including tree inspection, mulching, fertilization, pruning, and tree removal.



Trees serve many purposes in your local community; therefore, homeowners should think of tree care as an investment. A healthy tree increases in value with age and pays big dividends by increasing property values, beautifying surroundings, purifying air, and saving energy by providing cooling shade from summer's heat and protection from winter's wind.

Trees in the city or near houses need regular maintenance to promote health and structural integrity. An effective maintenance program, including regular inspections and necessary follow-up care—mulching, fertilizing, and additional soil management—can identify problems and correct them before they become damaging or fatal.

Tree Inspection

Regular tree inspections can detect changes in a tree's health before a disease, insect, or environmental problem becomes too serious. Mature trees should be inspected at least once a year to assess four characteristics of tree vitality: new leaf or bud formation, leaf size, twig growth, and absence of crown dieback (gradual death of the upper part of the tree).

Growth reduction is a fairly reliable cue that the tree's health has recently changed. An experienced arborist can look at twig growth from past years to determine whether there is a reduction in the tree's typical growth pattern.

In addition to tree health, tree stability is a major concern. There are some tree characteristics you can look for that can indicate structural weakness. These include cavity opening, extensive twig dieback, and the presence of fungal conks (mushrooms or brackets on the trunk).

Any abnormalities found during these inspections should be noted and monitored closely. Report your findings to your local tree care professional for advice on treatment options.

Pruning

- Pruning is often desirable or necessary to remove dead, diseased, or insect-infested branches and to improve tree structure, enhance vitality, or reduce risk.
- The removal of live branches creates a lasting wound; therefore, no branch should be removed without a reason.
- Pruning large trees requires special equipment, training, and experience.
- If pruning requires climbing, the use of a chain or hand saw, or the removal of large limbs, personal safety equipment is a must.

Arborists can assist in performing the job safely and reducing the risk of personal injury and damage to your property. They can also determine which type of pruning is necessary to maintain or improve the health, appearance, and safety of your trees.



Soil Management

- Soil tests are generally required before fertilizing or adjusting pH.
- Urban landscape trees often exist in soils that lack the nutrients, pH (acidity or alkalinity), drainage, or pore space (air and water space) needed for growth and development.
- Fertilization based on plant needs can correct many deficiencies that limit growth. Sometimes soil nutrients may be sufficient, but soil pH levels may prevent plant uptake. In this case, soil amendments, such as sulfur, lime, and even some mulches, can alter soil chemistry and help alleviate plant stress.
- Drainage systems or grading can help correct saturated soil conditions.
- Trenching or earthmoving within the tree's root zone may cause more harm than good.
- Compacted soils can be tilled mechanically or with compressed air to increase porosity and encourage root growth.
- When dealing with a mature tree, have the soil tested for nutrient content and texture. An arborist can arrange to have your soil tested at a soil testing laboratory and recommend treatments based on the results.

Mulching

- Mulching can reduce environmental stress by providing trees with a root environment that has fewer temperature and moisture extremes than the surrounding soil.
- Mulch reduces competition from weeds and grass and prevents mechanical damage by keeping lawn care equipment away from the tree's base.
- Mulches made from plant matter will add nutrients to the soil as they decompose and help improve soil biology.
- Mulch should be placed 2-4 inches (5-10 cm) deep. It should be placed near, but not touching, the trunk and extend to the dripline (furthest extent of the branches).



If you can't mulch the full distance, go as far from the trunk as possible while maintaining the landscape character.

Removal

Although tree removal is a last resort, there are circumstances when it is necessary. Arborists can help decide whether or not a tree should be removed and they possess the skills and equipment to safely and efficiently remove trees. Removal is recommended when a tree:

- Is dead, dying, or considered irreparably hazardous.
- Is causing an obstruction or is crowding and causing harm to other trees and the situation is impossible to correct through pruning.

With maintenance, trees can add aesthetic and economic value to your property. Poorly maintained trees can be a significant liability.

What Is a Certified Arborist?

ISA Certified Arborists® are individuals who have proven a level of knowledge in the art and science of tree care through experience and by passing a comprehensive examination developed by some of the nation's leading experts on tree care. ISA Certified Arborists must also continue their education to maintain their certification. Therefore, they are more likely to be up to date on the latest techniques in arboriculture.

Finding an Arborist

Visit TreesAreGood.org for free tools:

- The "Find an Arborist" tool can help you locate an arborist in your area.
- The "Verify a Credential" tool enables you to confirm whether an arborist has an ISA credential.

Be an Informed Consumer

One of the best methods to use in choosing an arborist is to educate yourself about some of the basic principles of tree care. Visit TreesAreGood.org to read and download all brochures in this series.



www.isa-arbor.com • www.treesaregood.org

©2021 International Society of Arboriculture. (v02.2021)
Through research, technology, and education, the International Society of Arboriculture promotes the professional practice of arboriculture and fosters a greater worldwide awareness of the benefits of trees.

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 an investment, and how well that investment grows depends on the type of tree selected, the location, and the care provided.

When to Plant

- Ideally during the dormant season—in the fall after leaf drop or in early spring before bud break.
- 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 can be planted throughout the growing season.
- 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 (girdling) 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.



Steps to Plant a Tree

Note: Before you begin planting your tree, be sure you have located all underground utilities prior to digging. **811 is the national call-before-you-dig phone number.** Anyone who plans to dig should call 811 or go to their state 811 center's website.

Carefully follow these nine steps to help your tree establish quickly in its new location:

1. The trunk flare is where the trunk expands at the base of the tree. **Ensure trunk flare is partially visible after the tree is planted.** Remove excess soil prior to planting if flare is not visible.
2. Dig a shallow, broad planting hole. **Holes should be 2–3 times wider than the root ball,** but only as deep as the root ball.
3. If wrapped, remove any cover from around the root ball and trunk to facilitate root growth. Remove wire basket or cut one or two rings off so it is low-profile and will not interfere with future root growth. Inspect tree root ball for circling roots and straighten, cut, or remove them. Expose the trunk flare if necessary.
4. Place the tree at the proper height. When placing the tree in the hole, lift by the root ball, not the trunk. The majority of tree's roots develop in the top 12 inches (30 cm) of soil. Planting too deep can be harmful to the tree.
5. Straighten the tree in the hole. Before filling the hole, have someone examine the tree from several angles to confirm it is straight.
6. Fill the hole gently but firmly. Pack soil around the base of the root ball to stabilize it. Fill the hole firmly to eliminate air pockets. Further reduce air pockets by watering periodically while backfilling. Avoid fertilizing at the time of planting.
7. If staking is necessary, three stakes or underground systems provide optimum support. **Studies have shown that trees develop stronger trunks and roots if they are not staked;** however, it may be required when planting bare root stock or on windy sites. Remove stakes after first year of growth.

- Mulch the base of the tree. Place a 2–3 inch (5–7.5 cm) layer of mulch, but be sure not to pile much right against the trunk. **A mulch-free area of 1–2 inches (2.5–5 cm) wide at the base of the tree will reduce moist bark and prevent decay.**
- Provide follow-up care. Keep the soil moist by watering at least once a week, barring rain, and more frequently during hot, windy weather. Continue until mid-fall, tapering off as lower temperatures require less-frequent watering.

Other follow-up care to consider:

- Minor pruning of branches damaged during the planting process may be required.
- Prune sparingly after planting. Delay corrective pruning until a full season of growth.
- If trunk wrapping is necessary, use biodegradable materials and wrap from the bottom.

What Is a Certified Arborist?

ISA Certified Arborists® are individuals who have proven a level of knowledge in the art and science of tree care through experience and by passing a comprehensive examination developed by some of the nation's leading experts on tree care. ISA Certified Arborists must also continue their education to maintain their certification. Therefore, they are more likely to be up to date on the latest techniques in arboriculture.

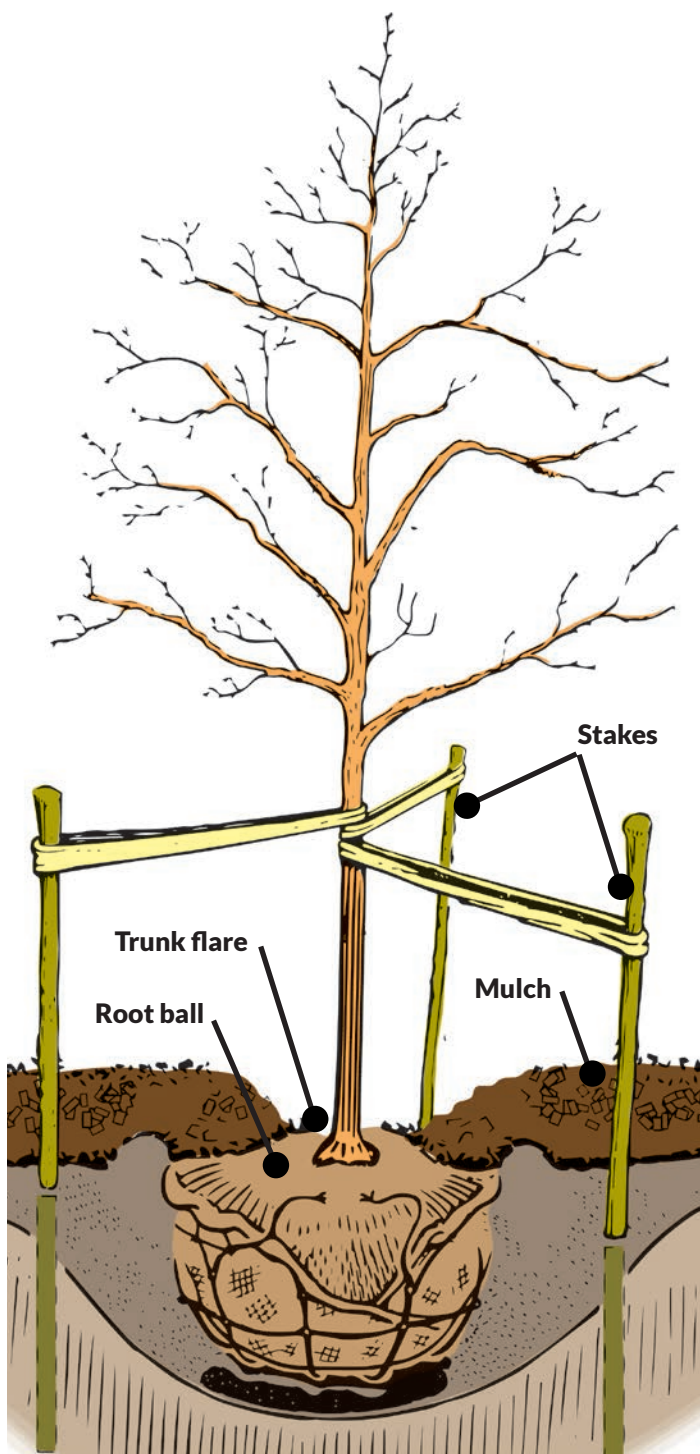
Finding an Arborist

Visit [TreesAreGood.org](https://www.treesaregood.org) for free tools:

- The “Find an Arborist” tool can help you locate an arborist in your area.
- The “Verify a Credential” tool enables you to confirm whether an arborist has an ISA credential.

Be an Informed Consumer

One of the best methods to use in choosing an arborist is to educate yourself about some of the basic principles of tree care. Visit [TreesAreGood.org](https://www.treesaregood.org) to read and download all brochures in this series.



www.isa-arbor.com • www.treesaregood.org

©2021 International Society of Arboriculture. (v03.2021)
Through research, technology, and education, the International Society of Arboriculture promotes the professional practice of arboriculture and fosters a greater worldwide awareness of the benefits of trees.

Avoiding Tree & Utility Conflicts



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

Think about the balance between the benefits of trees with those provided by utilities. We need both for livable communities and it's possible to have both with proper planning.

For trees to thrive they need room. The ultimate mature height and spread of a tree must fit within the available growing space. This includes not only above ground, but also the soil area below, which must be large enough to accommodate the rooting habits of the species.

Preventing tree-utility conflicts is a serious matter. It not only potentially involves tree roots or branches growing into utility facilities, but also tree parts or whole trees that can fail and damage utilities, particularly in inclement weather.

The potential consequences of tree-utility conflicts include disruption of critical services, like electricity, water, or natural gas. These conflicts can also involve widespread property damage, personal injury, and loss of life.

Underground Utilities

Electric, gas, water, and sewer lines installed underground can be compromised by tree roots. Roots commonly spread many times the breadth of the tree crown and can extend out farther than the height of a tree.

Electric Utilities

Modern electric lines are resistant to root damage, particularly if installed at a depth below where tree roots commonly explore. However, the life of underground lines is limited, and they will eventually need to be repaired or replaced. Excavation for that work can damage tree roots, harming or even killing trees.

Water and Sewer Utilities

New water and sewer lines made of steel or PVC are also generally resistant to root damage. Older cement, clay, or cast-iron pipes that have degraded may develop leaks. Moisture from the leaks attracts tree roots, which can penetrate and expand the cracks, further damaging the pipes.

Natural Gas Utilities

Natural gas operators often keep the area directly over, and 10 feet each side, of pipelines free of trees to protect them from potential tree root damage and allow for pipeline inspection and maintenance activities. Species that are sensitive to natural gas are sometimes planted over the pipeline to help expose gas leaks. Many providers also have tree height and diameter restrictions out as far as 25 feet further than the clear tree zone.

Locating Underground Utilities

The greatest danger to underground utilities occurs during planting. Accidental digging into underground utilities can cause costly repairs to restore interrupted service or result in injury or loss of life. Before digging call your utility company or locator service to make sure you have located underground utilities. Never assume that utilities are buried deeper than you plan to dig. Locating underground utilities before digging is often required by law.

Overhead Utilities

There are several types of utilities located overhead on poles. In general, the higher the lines on poles and more robust the structure, the greater the voltage and more space required from trees.

There are four main types of lines: communication, secondary, primary, and transmission.

Communication Lines

The lowest lines on poles are often communication lines. They are not designed to carry electricity but can become energized.

Secondary Lines

Above communication lines are secondary lines. These carry household voltage of 120/240 volts in North America. Many of these lines are insulated.

Most operators do not try to prevent vegetation contact with communication and insulated secondary lines. However, many utility providers will prune trees to protect them from abrasion and deflection.

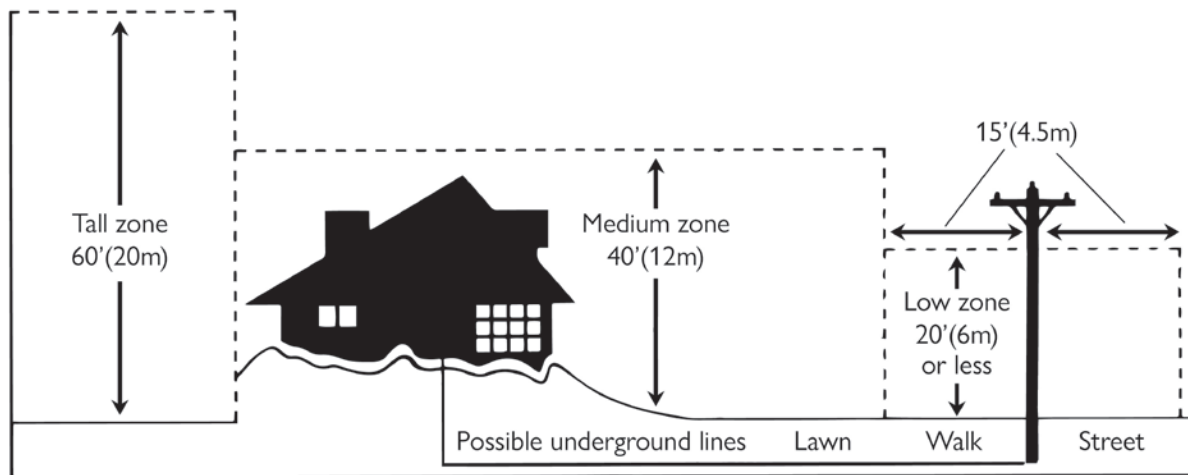
Some secondary lines are not insulated, and most electric utilities will systematically prune vegetation away from these types, but not enough to prevent contact before the next scheduled maintenance.

Primary Lines

Above secondary lines are primary lines. These are often located on top of single poles or on cross arms.

Transmission Lines

Transmission lines frequently carry hundreds of thousands of volts. It is best not to allow trees to develop with the potential to grow into them.



Tree Zones for Distribution Lines

Proper species selection and placement is important so trees have room to mature without having to be repeatedly pruned to keep them from interfering with utility lines. Species shape and size should fit into three zones relative to distribution lines: low, medium, and tall.

Tall Zones

The tall zone is at least 50 feet (15 meters) away from distribution lines. Trees with any potential mature height, including large species, may be selected for the tall zone. Make sure there is sufficient soil area to accommodate their expansive root systems. Planting sites greater than 8 feet (3 meters), including parks, meadows or other open spaces without below ground restrictions are appropriate.

Medium Zones

The medium zone extends between 15 and 50 feet (4.5 and 15 meters) from distribution lines. Species selected in this area should be medium sized, with a potential mature height of 40 feet (12 meters) or lower. Medium zone trees require wide planting areas or medians (4 to 8 feet – 1.3 to 3 meters wide), large planting squares (8 feet or 3 meters or greater), and other open areas of similar or larger size.

Low Zones

The low zone extends 15 feet (4.5 meters) on either side of distribution wires. Species selected for the low zone should have a mature height of 20 feet (6 meters) or lower. Low zone species may also be selected where soil volumes are too limited to support medium or tall zone trees.

Right Tree–Right Place

Planning before you plant ensures the right tree is planted in the right place. Proper tree selection and placement enhances your property value and prevents costly maintenance pruning and utility damage.

For further information on planting and helpful tips on street tree selection, refer to ISA's brochures on tree selection and new planting. If you have any more questions, please contact your local ISA Certified Arborist®, utility company, local nursery, or county extension office.

What Is a Certified Arborist?

ISA Certified Arborists® are individuals who have proven a level of knowledge in the art and science of tree care through experience and by passing a comprehensive examination developed by some of the nation's leading experts on tree care. ISA Certified Arborists must also continue their education to maintain their certification. Therefore, they are more likely to be up to date on the latest techniques in arboriculture.

Finding an Arborist

Visit TreesAreGood.org for free tools:

- The “Find an Arborist” tool can help you locate an arborist in your area.
- The “Verify a Credential” tool enables you to confirm whether an arborist has an ISA credential.

Be an Informed Consumer

One of the best methods to use in choosing an arborist is to educate yourself about some of the basic principles of tree care. Visit TreesAreGood.org to read and download all brochures in this series.



www.isa-arbor.com • www.treesaregood.org

©2021 International Society of Arboriculture. (v02.2021)
Through research, technology, and education, the International Society of Arboriculture promotes the professional practice of arboriculture and fosters a greater worldwide awareness of the benefits of trees.

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.

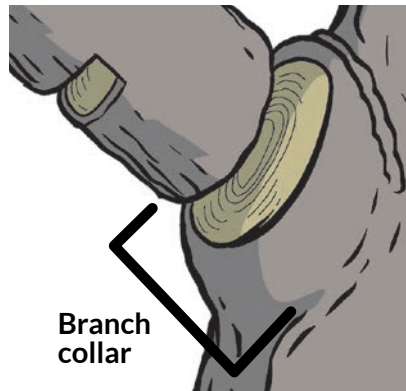
Key Points for Pruning Young Trees

- Set an objective for why the tree will be pruned. For younger trees, the objective is to improve tree structure so the tree will be strong and not interfere with its surroundings as it matures.
- Each cut has the potential to alter the growth of the tree.
- Poor pruning can cause life long damage for the tree. When a tree is damaged it must grow over the damage and the wound is contained within the tree forever.

Deciding Where to Cut

- Pruning cut location is critical to a tree's growth and wound closure response.
- Make pruning cuts just outside the branch collar (see figure below) to avoid damaging the trunk.

- When a long branch needs to be shortened, prune it back to a secondary branch or bud.
- Cuts made between buds or branches may lead to stem decay, sprout production and misdirected growth.



Pruning Tools

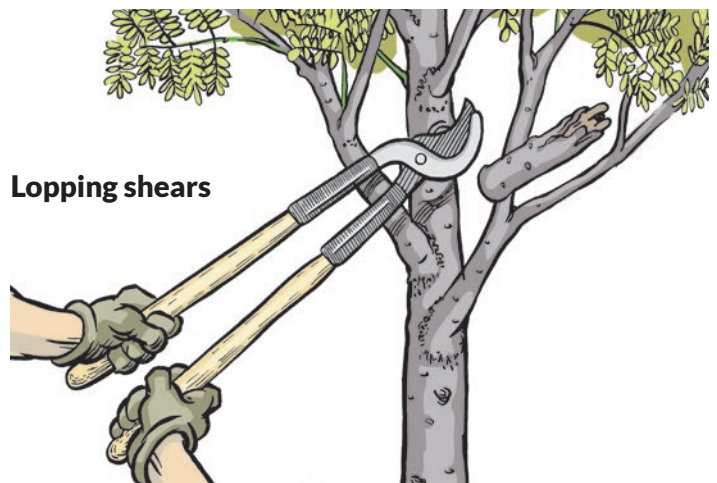
- Small branches can be cut with hand pruners.
- Scissor-type or bypass-blade hand pruners are preferred over the anvil type because they make cleaner, more-accurate cuts.
- Cuts larger than one-half inch (1.27 cm) in diameter should be made with lopping shears or a pruning saw.
- Hedge shears should be used on hedges only.
- Ensure tools are kept clean and sharp.

Newly Planted Trees

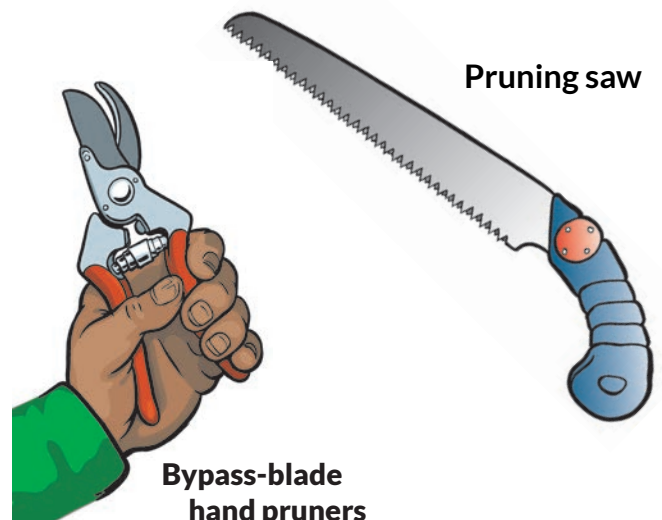
Limit pruning of newly planted trees to the removal of dead or broken branches. All other pruning should be withheld until the second or third year, when a tree has recovered from the stress of transplanting.

Wound Dressings

Research has shown that wound dressings do not reduce decay or speed up wound closure and rarely prevent insect or disease infestations. Most experts recommend not using wound dressings.



Lopping shears

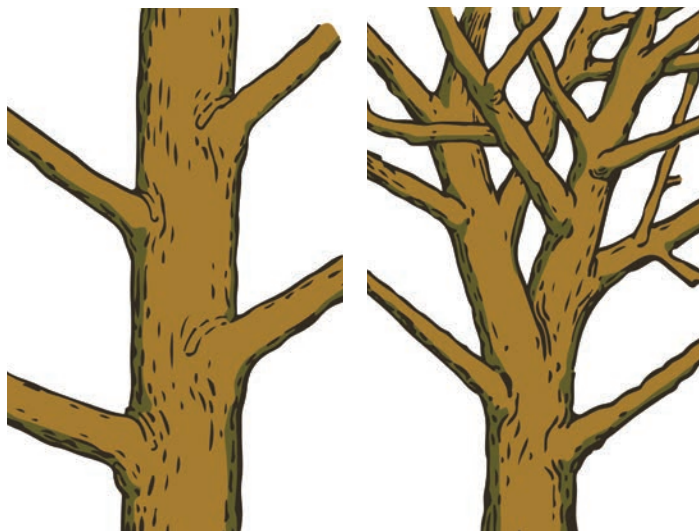


Pruning saw

Bypass-blade hand pruners

Permanent Branch Selection

- As young trees grow, most of the branches present at planting will be pruned away 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 (2.5 m) of clearance is sufficient. Trees used as screens or windbreaks, 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% 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).
- 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 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 when small. Balance should be considered by retaining some branches in each direction radially, spreading from the center outward (see figure top right). 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 supporting branches are major sites of food production and storage. Eliminating too much canopy can "starve" the tree, reduce growth, and increase stress.



Good structure

Poor structure

Establishing a Strong Scaffold Structure

- "Scaffold branches" are a mature tree's framework. Well trained young trees will develop a strong structure that requires less corrective pruning as they mature.
- The goal is to establish a strong, central trunk with sturdy, well-spaced branches. This form mimics tree growth in forests where outward branching is limited by neighboring trees.
- Some tree species develop some or all of these attributes naturally. Others may require more frequent attention.

Trunk Development

- Most young trees maintain a single dominant, upward-growing trunk, called a "leader".
- Do not prune back the tip of this leader or allow secondary branches to grow taller than the main leader.
- Sometimes, a tree will develop two or more nearly equal size leaders known as codominant stems. Codominant stems can lead to structural weaknesses, so it is best to remove or shorten all but one of the stems when young.
- A tree's secondary branches contribute to the development of a sturdy, well-tapered trunk.

What Is a Certified Arborist?

ISA Certified Arborists® are individuals who have proven a level of knowledge in the art and science of tree care through experience and by passing a comprehensive examination developed by some of the nation's leading experts on tree care.

Finding an Arborist

Visit [TreesAreGood.org](https://www.treesaregood.org) for free tools and to read all brochures in this series.

- The "Find an Arborist" tool can help you locate an arborist in your area.
- The "Verify a Credential" tool enables you to confirm whether an arborist has an ISA credential.



www.isa-arbor.com • www.treesaregood.org

©2021 International Society of Arboriculture. (v03.2021)
Through research, technology, and education, the International Society of Arboriculture promotes the professional practice of arboriculture and fosters a greater worldwide awareness of the benefits of trees.

Pruning Mature Trees

Understand the pruning needs of mature trees and the proper pruning techniques for their care.



Pruning is the most common tree maintenance procedure. Although forest trees grow well with only nature's pruning, landscape trees require a higher level of care to maintain their structural integrity and aesthetics. Pruning must be done with an understanding of tree biology because improper pruning can create lasting damage or shorten the tree's life.

Reasons for Pruning

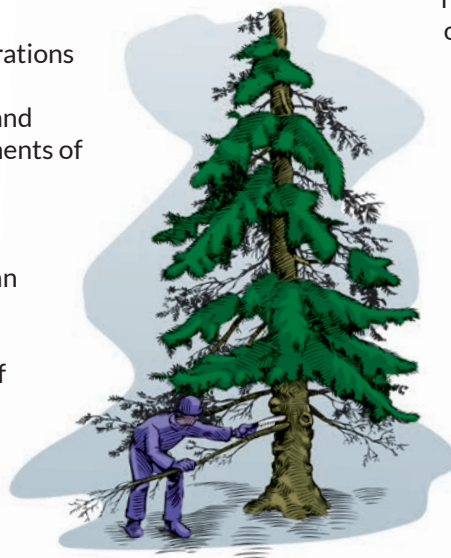
Because each cut has the potential to change the growth of the tree, no branch should be removed without a reason. Common reasons include:

- Removing dead branches, improving form, and to reduce risk.
- To increase light and air penetration to the inside of the tree's crown or to the landscape below.
- Generally, mature trees are pruned as corrective or preventive measures.

Routine thinning does not necessarily improve the health of a tree. Trees produce a dense crown of leaves to manufacture the sugar used as energy for growth and development. Removal of foliage through pruning can reduce growth and stored energy reserves. Heavy pruning can be a significant health stress for the tree.

There are many outside considerations that make it necessary to prune trees such as: safety, clearance, and compatibility with other components of a landscape.

Proper pruning, with an understanding of tree biology, can maintain good tree health and structure while enhancing the aesthetic and economic values of our landscapes.



When to Prune

Most light, routine pruning to remove weak, dead, or diseased limbs can be accomplished at any time during the year with little effect on the tree.

As a rule, growth and wound closure are maximized if pruning takes place before the spring growth flush. Some trees, such as maples and birches, tend to "bleed" if pruned early in the spring. It may be unsightly, but it is of little consequence to the tree.

Heavy pruning of live tissue just after the spring growth flush should be avoided, especially on weak trees. At that time, trees have just expended a great deal of energy to produce foliage and early shoot growth. Removal of a large percentage of foliage at that time can stress the tree.

A few tree diseases, such as oak wilt, can be spread through pruning wounds and provide access to pathogens (disease-causing agents). Susceptible trees should not be pruned during active transmission periods.

How Much Should Be Pruned?

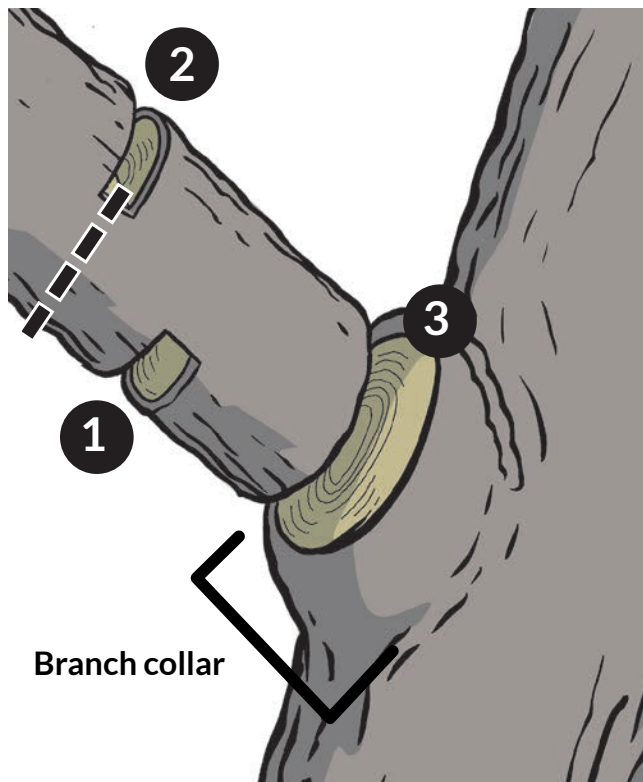
The amount of live tissue that should be removed depends on the tree's size, species, age, and pruning objectives. Younger trees tolerate the removal of a higher percentage of living tissue better than mature trees. Generally, no more than 25% of the crown should be removed at once, and less for mature trees.

Removal of a single, large-diameter limb can create a wound that may not be able to close. Care should be taken to meet pruning objectives.

Making Proper Pruning Cuts

A correct pruning cut removes the branch just outside of the collar. **Do not make cuts flush to the trunk.** Trunk tissues above and below a flush cut branch often die, creating dead spots.

If a collar has grown out on a dead limb, make the cut just beyond the collar. Do not cut the collar.



(See figure above.) If a large limb is to be removed, its weight should first be reduced as follows:

1. Make an undercut about 12–18 inches (30–46 cm) from the limb's point of attachment.
2. Make a second cut from the top, directly above or a few inches farther out on the limb. Doing so removes the limb, leaving a stub.
3. Remove the stub by cutting back to the branch collar. This technique reduces the possibility of tearing the bark.

Pruning Techniques

Cleaning is the removal of dead, dying, diseased, weakly attached, and low-vigor branches from the crown of a tree.

Raising removes the lower branches from a tree to provide clearance for buildings, vehicles, pedestrians, and vistas.

Reduction reduces the size of a tree, often for utility line clearance. Reducing a tree's height or spread is best accomplished by pruning back the leaders and branch terminals to secondary branches that are large enough to assume the terminal roles (at least one-third the diameter of the cut stem). Compared to topping (See "Why Topping Hurts Trees" brochure), reduction helps maintain the tree's form and structural integrity.

Reducing density of foliage at the crown periphery (previously called thinning) is sometimes performed to increase wind or light penetration for aesthetic reasons and to promote interior foliage development.

Wound Dressings

Research has shown that wound dressings do not reduce decay or speed up wound closure and rarely prevent insect or disease infestations. Most experts recommend not using wound dressings.

Hiring an Arborist

Pruning large trees can be dangerous. Pruning that involves working above the ground or using power equipment should be done by an ISA Certified Arborist®. These arborists can determine the type of pruning necessary to improve the overall health of the tree and provide the services of a trained crew with the required safety equipment and liability insurance.

What Is a Certified Arborist?

ISA Certified Arborists® are individuals who have proven a level of knowledge in the art and science of tree care through experience and by passing a comprehensive examination developed by some of the nation's leading experts on tree care. ISA Certified Arborists must also continue their education to maintain their certification. Therefore, they are more likely to be up to date on the latest techniques in arboriculture.

Finding an Arborist

Visit TreesAreGood.org for free tools:

- The "Find an Arborist" tool can help you locate an arborist in your area.
- The "Verify a Credential" tool enables you to confirm whether an arborist has an ISA credential.

Be an Informed Consumer

One of the best methods to use in choosing an arborist is to educate yourself about some of the basic principles of tree care. Visit TreesAreGood.org to read and download all brochures in this series.



www.isa-arbor.com • www.treesaregood.org

©2021 International Society of Arboriculture. (v03.2021)
Through research, technology, and education, the International Society of Arboriculture promotes the professional practice of arboriculture and fosters a greater worldwide awareness of the benefits of trees.

Why Topping Hurts Trees

Learn why topping is not an acceptable pruning technique and discover recommended alternatives.



Topping is perhaps the most harmful tree pruning practice known. Yet, despite more than 25 years of literature and seminars explaining its harmful effects, topping remains a common practice.

What Is Topping?

Topping is the indiscriminate cutting of tree branches to stubs or to lateral branches that are not large enough to assume the terminal role.

Other names include “heading,” “tipping,” “hat-racking,” and “rounding over.”

Topping is often used to reduce the size of a tree. Homeowners may feel a large tree poses a risk to their property; however, topping is not a viable method of height reduction, and may increase risk in the long term.



RIGHT



Topping Stresses Trees

Leaves are the food factories of a tree; however, topping can remove 50-100% of a tree's leaf-bearing crown. Removing the leaves can potentially starve a tree and trigger various survival mechanisms. Dormant buds are activated, forcing rapid growth of multiple shoots below each cut. The tree needs to grow a new crop of leaves as soon as possible. If a tree does not have the stored energy reserves to do so, it will be seriously weakened and may die.

A stressed tree with large, open pruning wounds is more vulnerable to insect and disease infestations. The tree may lack sufficient energy to chemically defend the wounds against invasion, and some insects are actually attracted to the chemical signals trees release.

Topping Can Lead to Sunburn

Branches within a tree's crown produce thousands of leaves to absorb sunlight. When the leaves are removed, the remaining branches and trunk are suddenly exposed to high levels of light and heat. The result may be sunburn of the tissues beneath the bark, which can lead to cankers, bark splitting, and death of some branches.



Topping Leads to Decay

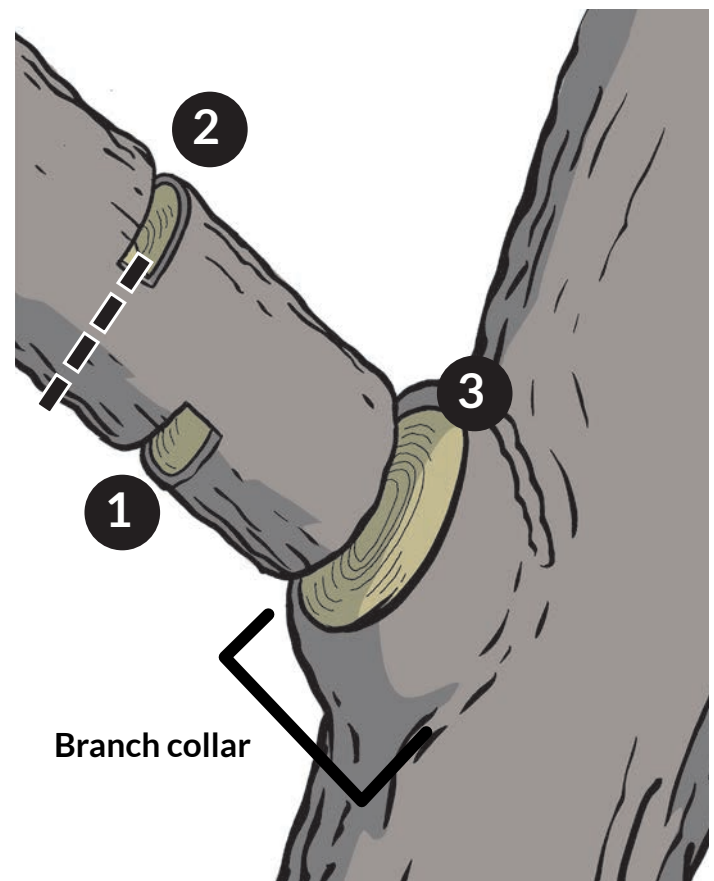
Correct pruning cuts are made just beyond the branch collar (see figure below). The tree is biologically equipped to close such a wound if the tree is healthy enough and the wound is not too large.

Cuts made indiscriminately between lateral branches create stubs or wounds that the tree may not be able to close. The exposed wood tissues begin to decay. Normally, a tree will “wall off,” or compartmentalize, the decaying tissues, but few trees can defend the multiple severe wounds caused by topping. The decay organisms are given a free path to move through branches.

Topping Can Lead to Unacceptable Risk

The survival mechanism that causes a tree to produce multiple shoots below each topping cut comes at great expense to the tree (see figure above). These shoots develop from buds near the surface of the old branches. Unlike normal branches that develop in a socket of overlapping wood tissues, these new shoots are anchored only in the outermost layers of the parent branches and are weakly attached.

The new shoots grow quickly, as much as 20 feet (6 m) in one year in some species. Unfortunately, the shoots are weakly attached and prone to breaking, especially during windy or icy conditions. While the original goal was to reduce risk by reducing height, risk of limb failure has now increased (see figure below).



How to Make a Pruning Cut:

1. Make an undercut about 12–18 inches (30–46 cm) from the limb's point of attachment.
2. Make a second cut from the top, directly above or a few inches farther out on the limb. Doing so removes the limb, leaving a stub.
3. Remove the stub by cutting back to the branch collar, but do not cut the collar. This technique reduces the possibility of tearing the bark.

Topping Makes Trees Ugly

Topping destroys the natural form of a tree. Trees form a variety of shapes and growth habits, all with the same goal of presenting their leaves to the sun. Topping removes the ends of the branches, often leaving ugly stubs. Without leaves (for up to six months of the year in temperate climates), a topped tree appears disfigured and mutilated. **A tree that has been topped can never fully regain its natural form.**

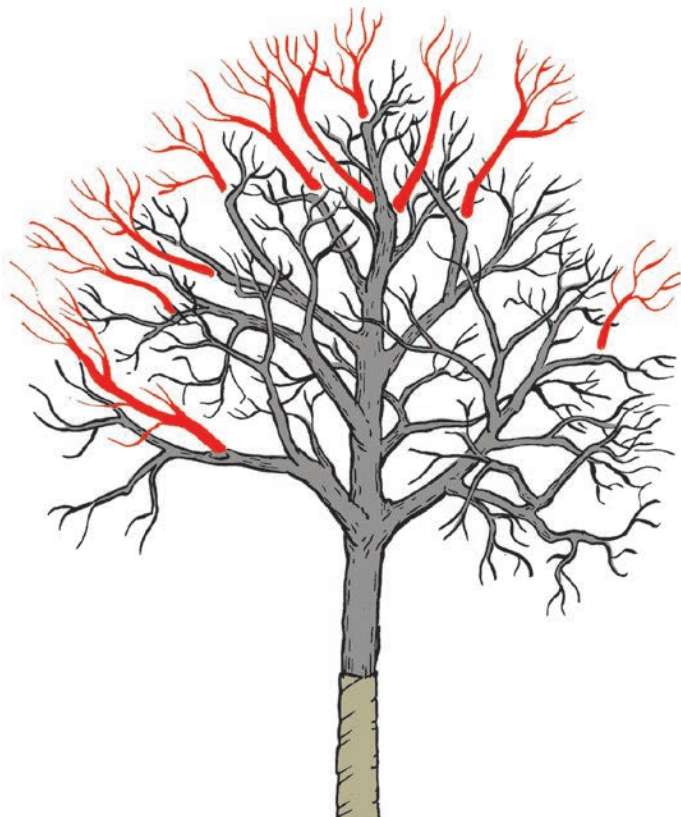
If the tree has started closing over a stub, cut just the dead stub and not the live tissue.



Topping Is Expensive

The cost of topping a tree is not limited to only the job cost. Some hidden costs include:

- Increased maintenance costs. If the tree survives, it will likely require corrective pruning within a few years (e.g., crown reduction or storm damage repair). If the tree dies, it will have to be removed.
- Reduced property value. Healthy, well-maintained trees can add 10–20% to the value of a property. Disfigured, topped trees are considered an impending expense.
- Increased liability potential. Topped trees may pose an unacceptable level of risk. Because topping is considered an unacceptable pruning practice, any damage caused by branch failure of a topped tree may lead to a finding of negligence in a court of law.



Proper branch reduction preserves natural form.

Alternatives to Topping

Sometimes a tree must be reduced in height or spread, such as for providing utility line clearance. There are recommended techniques for doing so. Small branches should be removed back to their point of origin. If a larger limb must be shortened, it should be pruned back to a lateral branch that is large enough (at least one-third the diameter of the limb being removed) to assume the terminal role. This method of branch reduction helps to preserve the natural form of the tree.

Sometimes the best solution is to remove the tree and replace it with a species that is more appropriate.

What Is a Certified Arborist?

ISA Certified Arborists® are individuals who have proven a level of knowledge in the art and science of tree care through experience and by passing a comprehensive examination developed by some of the nation's leading experts on tree care. ISA Certified Arborists must also continue their education to maintain their certification. Therefore, they are more likely to be up to date on the latest techniques in arboriculture.

Finding an Arborist

Visit [TreesAreGood.org](https://www.treesaregood.org) for free tools:

- The “Find an Arborist” tool can help you locate an arborist in your area.
- The “Verify a Credential” tool enables you to confirm whether an arborist has an ISA credential.

Be an Informed Consumer

One of the best methods to use in choosing an arborist is to educate yourself about some of the basic principles of tree care. Visit [TreesAreGood.org](https://www.treesaregood.org) to read and download all brochures in this series.



www.isa-arbor.com • www.treesaregood.org

©2021 International Society of Arboriculture. (v02.2021)
Through research, technology, and education, the International Society of Arboriculture promotes the professional practice of arboriculture and fosters a greater worldwide awareness of the benefits of trees.

Palms

Learn more about palms, including palm selection, planting, and maintenance guidelines.



Palms are most prolific in tropical and subtropical regions, although a few varieties will even grow in warm temperate regions. A wide variety of species are available with a range of characteristics that make them fitting for most landscapes.

Palms are quite different from shade trees and conifers in appearance, growth, and care requirements. Unlike trees, a palm has only one aboveground growing point per trunk or stem. Located at the top of its trunk, this point and its surrounding tissues make up the terminal bud. If the terminal bud is injured, the palm often dies. This is especially true for a palm with only one trunk. If the palm has multiple trunks, the plant will usually live on if only one trunk is killed.

The roots of a palm do not thicken like those of trees and are less likely to damage sidewalks and utilities. New roots are generated at the root initiation zone, which is sometimes visible at the base of the trunk.

Palm Selection

Asking and answering these and other questions before selecting a palm will help you choose the “right tree for the right place”:

- Why is the palm being planted? Will it act as a windbreak or screen (clumping palm)? Will it be a focal point of the landscape?
- Does the planting space and location lend itself to a large, medium, or small palm? Are overhead or belowground utilities nearby? Is the site sunny or shady, windy or protected? Is the soil deep, fertile, and well drained, or is it shallow, infertile, and compacted?
- How much maintenance are you willing to provide? Does the palm have large fruits or fronds that need to be removed regularly to reduce the possibility of injury, litter, or property damage?

Purchasing Palms

Most palms are grown in containers at nurseries, although larger specimens may be dug and transplanted out of field stock. Choose a healthy palm for the best results in your landscape.

A high-quality palm has:

- A properly-sized root ball for the species and uniform trunk diameter consistent with the species’ characteristic trunk diameter.
- A trunk free of mechanical wounds and wounds from incorrect pruning.
- Full crown of healthy, vigorous fronds. (Sabal palms [Sabal palmetto] are purchased with fronds removed.)

A low-quality palm has:

- Trunk sections of varying diameter (“hourglass”) or small diameter below the terminal bud (“pencil”).
- A trunk with wounds from mechanical impacts or incorrect pruning.
- Few fronds, poor color for the species, or disease or pest infestation.

With careful palm selection, proper planting, and regular maintenance, your palm can be a beautiful part of your landscape for many years.

Planting and Transplanting Palms

(See figure on next page)

A: Remove wrappings or container.

B: Remove dead or dying fronds prior to planting. Tie the remaining fronds and limit excessive movement of the palm head to protect the terminal bud during transport and planting. Remove ties after planting.

C: The planting hole should be about 18 inches (46 cm) wider than the root ball. Dig the hole deep enough so that when the root ball is placed in the hole, where the roots emerge from the trunk is about even with the surrounding

soil surface or grade. Set the root ball on firmly packed soil to prevent settling. Gently fill the hole with the original soil where possible. Use water to settle the soil back around the root ball.

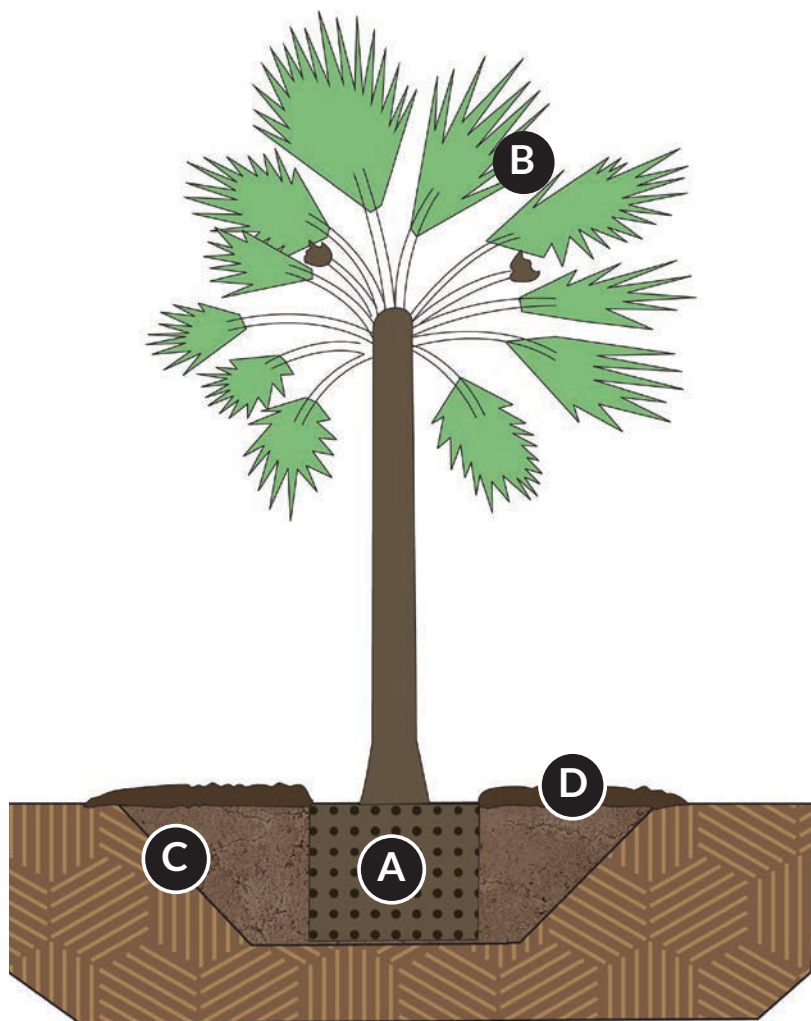
D: Apply 2–4 inches (5–10 cm) of organic mulch extending 2–4 feet (0.6–1.2 m) around the palm. Be sure not to pile too much right against the trunk. **A mulch-free area reduces excess moisture and prevents decay.**

When to Plant

For palms dug from a field where root disturbance can be severe, the best time to transplant is the beginning of the warm season—early to late spring depending on location. On the other hand, palms from a container can be planted just about year-round as the roots are usually not disturbed.

Irrigation

Irrigation needs depend on the climate and palm species. Generally, the goal is to keep the original root ball, backfill, and surrounding site soil evenly moist, not too wet and not too dry. For cooler areas, water 1–2 times a week for three months after planting. For warmer climates or during the dry season, water 3–4 times a week until the palm becomes established or adequate natural rain water is available.



Maintaining Palms

Fertilizers

Depending on the site and species, palms may require fertilization to compensate for a nutrient deficiency, such as nitrogen (yellow old and new fronds), potassium (old fronds with yellow or orange flecking), magnesium (yellow band around the outside of the fronds), iron (yellow young new fronds, green mature fronds), manganese, particularly in alkaline soils (yellowed, brown or “torched-looking” frizzled new fronds), and zinc (small fronds).

Mulching

Organic mulches can add soil nutrients as they decompose. They also help limit damage from lawn care equipment, reduce weeds, conserve water, and improve soil structure and condition. Apply 2–4 inches (5–10 cm) of organic mulch extending 2–4 feet (0.6–1.2 m) around a palm.

Diseases and Pests

Palms are susceptible to infections by fungi and sometimes viruses and bacteria, as well as to infestation by insects and other pests. Infectious agents and pests vary widely by region. A university extension service, consulting arborist, or plant health care specialist familiar with palms in your area may be able to provide a diagnosis and suggestions for treatment.

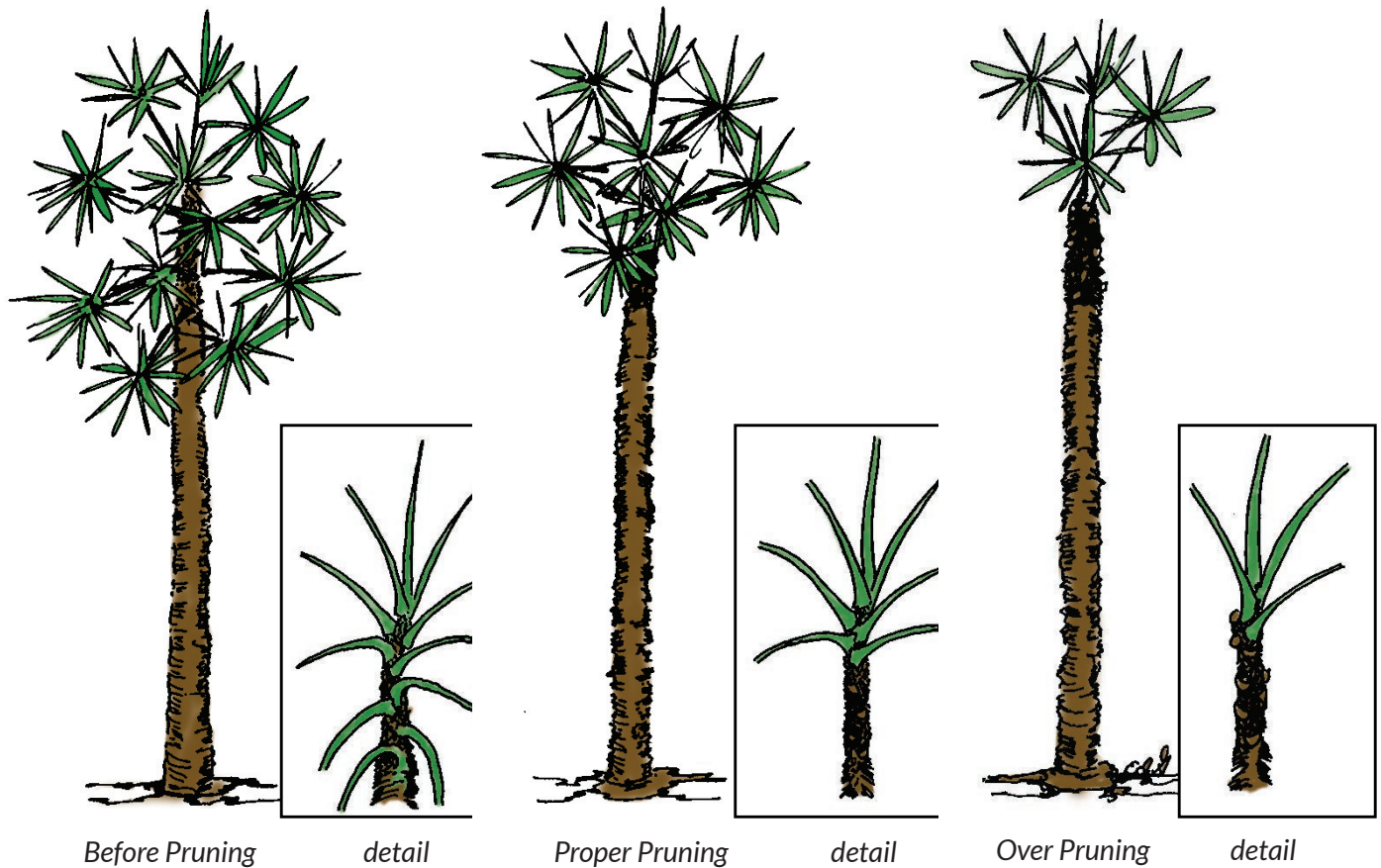
Pruning

Most pruning of palms is done to remove dead or dying fronds, inflorescences (flowering), and/or fruiting clusters, particularly those that may be a potential risk to the public, such as coconuts.

Pruning is usually conducted at least biannually. Coconuts may be pruned as often as every 3–4 months to minimize the risk of injury or damage from the heavy fruit. Great care should be taken to avoid any damage to the terminal bud. Over-pruned palms may have slower growth and may attract pests.

Generally, remove old, dead, lower fronds only, unless otherwise required for clearance. Occasionally, live green fronds, where the frond shaft has descended below a horizontal plane, can be removed. Removing live fronds where the shaft is greater than 45 degrees above horizontal is not known to reduce future pruning requirements.

Climbing spikes should not be used to climb palms for pruning because they permanently wound the palm trunk. Wounds on palms do not close.



Before Pruning

detail

Proper Pruning

detail

Over Pruning

detail

Finding an Arborist

Visit [TreesAreGood.org](https://www.treesaregood.org) for free tools:

- The “Find an Arborist” tool can help you locate an arborist in your area.
- The “Verify a Credential” tool enables you to confirm whether an arborist has an ISA credential.

Be an Informed Consumer

One of the best methods to use in choosing an arborist is to educate yourself about some of the basic principles of tree care. Visit [TreesAreGood.org](https://www.treesaregood.org) to read and download all brochures in this series.

What Is a Certified Arborist?

ISA Certified Arborists® are individuals who have proven a level of knowledge in the art and science of tree care through experience and by passing a comprehensive examination developed by some of the nation’s leading experts on tree care.

ISA Certified Arborists must also continue their education to maintain their certification. Therefore, they are more likely to be up to date on the latest techniques in arboriculture.



Why Hire an Arborist?

Learn about services that arborists provide, criteria for selecting an arborist, and the benefits of hiring an ISA Certified Arborist®.



Healthy trees serve many purposes in your local community. A way to ensure your trees stay healthy is by hiring an arborist. Professional, trained arborists know how to properly maintain trees for the safety of the public and the health of the tree.

What Is an ISA Certified Arborist?

An ISA arborist certification is a nongovernmental, voluntary process by which individuals can document their base of knowledge. Certification provides a measurable assessment of an individual's knowledge in the competencies needed for proper tree care.

When a professional becomes an ISA Certified Arborist, they should be recognized by their peers and the public as a tree care professional who has attained a generally-accepted level of knowledge in areas such as tree biology, diagnosis, maintenance practices, safety, and other subject and practice areas within the tree care profession as identified through periodic job task analyses.

They must also continue their education to maintain their certification. Therefore, they are more likely to be up to date on the latest techniques in arboriculture.



Selecting the Right Arborist for the Job

- Check for an ISA arborist credential. ISA Certified Arborists and ISA Board Certified Master Arborists® are experienced professionals who have passed comprehensive exams covering all aspects of tree care.
- Check for membership in professional organizations such as the International Society of Arboriculture (ISA), the Tree Care Industry Association (TCIA), or the American Society of Consulting Arborists (ASCA).
- Ask for proof of insurance and call the insurance company.
- Check for local permits and licenses.
- Get more than one estimate and ask for references.
- Don't always accept the lowest bid. Examine the credentials and the written specifications of the firms that submitted the bids and determine the best combination of price, work to be done, skills and professionalism.
- Be wary of people who go door to door and offer bargains.
- ISA certification holders must follow a Code of Ethics and use industry-accepted practices and standards.
- Get it in writing. Most reputable arborists have their clients sign a contract. Read it carefully and ask questions.

Finding an Arborist

Visit [TreesAreGood.org](https://www.treesaregood.org) for free tools:

- The "Find an Arborist" tool can help you locate an arborist in your area.
- The "Verify a Credential" tool enables you to confirm whether an arborist has an ISA credential.
- ISA credential holders have access to a digital certificate of their credentials to shared online.

Be an Informed Consumer

One of the best methods to use in choosing an arborist is to learn some of the basic principles of tree care. Visit [TreesAreGood.org](https://www.treesaregood.org) to read and download all brochures in this series.

Your local garden center, extension agent, or city arborists are also excellent sources of information if you should have further questions. They may also be able to refer you to an ISA Certified Arborist or ISA Board Certified Master Arborist in your area.

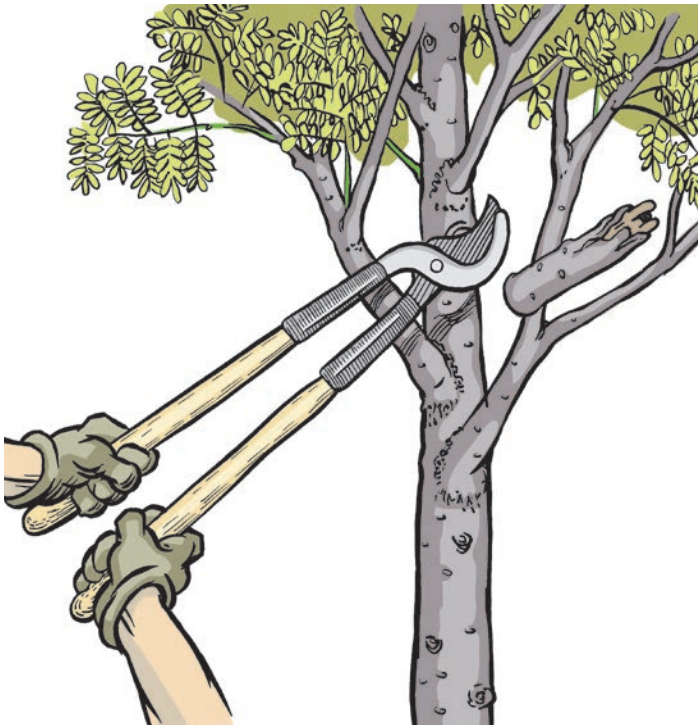
Services That Arborists Provide:

Pruning

Arborists can determine the type of pruning necessary to improve the health, appearance, and safety of trees. Pruning may include removing limbs that:

- Interfere with utilities or structures.
- Obstruct streets or sidewalks.
- Are dead, damaged by storms, weak, or decayed, and pose unacceptable risk.
- Are diseased or insect-infested.

Other pruning strategies improve tree structure, and reduce the likelihood of future damage during storm events.



Planting

Some arborists plant trees, and most recommend species that are appropriate for certain locations. Selecting the wrong tree can lead to future problems with growing space, insects, diseases, or poor growth.

Emergency Tree Care

Removing or pruning storm-damaged trees can be dangerous, but an arborist can perform the job safely while reducing further risk of damage to people and property.

Tree Removal

Arborists can help decide if a tree should be removed. Hiring an arborist is recommended when the tree is:

- Dead, dying, or considered an unacceptable risk.
- Causing an obstruction that is impossible to correct through pruning.
- Crowding and causing harm to other more desirable trees.
- Located in where new construction requires removal.

Other Services

Arborists may also provide other services, including:

- Plant health care or preventive maintenance.
- Cabling and bracing for added support to branches with weak attachments.
- Soil aeration to improve root growth.
- Installation of lightning protection systems.
- Consulting and legal services relating to trees.
- Tree risk assessment.
- Tree protection during construction.



www.isa-arbor.com • www.treesaregood.org

©2021 International Society of Arboriculture. (v02.2021)
Through research, technology, and education, the International Society of Arboriculture promotes the professional practice of arboriculture and fosters a greater worldwide awareness of the benefits of trees.



Brought to you by ISA



MENU



Use our free tool



Find a professional



Free downloads



AGREEMENT BETWEEN USER AND Trees Are Good

The Trees Are Good Web Site is comprised of various Web pages operated by Trees Are Good.

The Trees Are Good Web Site is offered to you conditioned on your acceptance without modification of the terms, conditions, and notices contained herein. Your use of the Trees Are Good Web Site constitutes your agreement to all such terms, conditions, and notices.

MODIFICATION OF THESE TERMS OF USE

Trees Are Good reserves the right to change the terms, conditions, and notices under which the Trees Are Good Web Site is offered, including but not limited to the charges associated with the use of the Trees Are Good Web Site.

LINKS TO THIRD PARTY SITES

The Trees Are Good Web Site may contain links to other Web Sites ("Linked Sites"). The Linked Sites are not under the control of Trees Are Good and Trees Are Good is not responsible for the contents of any Linked Site, including without limitation any link contained in a Linked Site, or any changes or updates to a Linked Site. Trees Are Good is not responsible for webcasting or any other form of transmission received from any Linked Site. Trees Are Good is providing these links to you only as a convenience, and the inclusion of any link does not imply endorsement by Trees Are Good of the site or any association with its operators.

NO UNLAWFUL OR PROHIBITED USE

As a condition of your use of the Trees Are Good Web Site, you warrant to Trees Are Good that you will not use the Trees Are Good Web Site for any purpose that is unlawful or prohibited by these terms, conditions, and notices. You may not use the Trees Are Good Web Site in any manner which could damage, disable, overburden, or impair the Trees Are Good Web Site or interfere with any other party's use and enjoyment of the Trees Are Good Web Site.

You may not obtain or attempt to obtain any materials or information through any means not intentionally made available or provided for through the Trees Are Good Web Sites.

USE OF COMMUNICATION SERVICES

The Trees Are Good Web Site may contain bulletin board services, chat areas, news groups, forums, communities, personal web pages, calendars, and/or other message or communication facilities designed to enable you to communicate with the public at large or with a group (collectively, "Communication Services"), you agree to use the Communication Services only to post, send and receive messages and material that are proper and related to the particular Communication Service. By way of example, and not as a limitation, you agree that when using a Communication Service, you will not:

Defame, abuse, harass, stalk, threaten or otherwise violate the legal rights (such as rights of privacy and publicity) of others.

Publish, post, upload, distribute or disseminate any inappropriate, profane, defamatory, infringing, obscene, indecent or unlawful topic, name, material or information.

Upload files that contain software or other material protected by intellectual property laws (or by rights of privacy or publicity) unless you own or control the rights thereto or have received all necessary consents.

Upload files that contain viruses, corrupted files, or any other similar software or programs that may damage the operation of another's computer.

Advertise or offer to sell or buy any goods or services for any business purpose, unless such Communication Service specifically allows such messages.

Conduct or forward surveys, contests, pyramid schemes or chain letters.

Download any file posted by another user of a Communication Service that you know, or reasonably should know, cannot be legally distributed in such manner.

Falsify or delete any author attributions, legal or other proper notices or proprietary designations or labels of the origin or source of software or other material contained in a file that is uploaded.

Restrict or inhibit any other user from using and enjoying the Communication Services.

Violate any code of conduct or other guidelines which may be applicable for any particular Communication Service.

Harvest or otherwise collect information about others, including e-mail addresses, without their consent.

Violate any applicable laws or regulations.

Trees Are Good has no obligation to monitor the Communication Services. However, Trees Are Good reserves the right to review materials posted to a Communication Service and to remove any materials in its sole discretion. Trees Are Good reserves the right to terminate your access to any or all of the Communication Services at any time without notice for any reason whatsoever.

Trees Are Good reserves the right at all times to disclose any information as necessary to satisfy any applicable law, regulation, legal process or governmental request, or to edit, refuse to post or to remove any information or materials, in whole or in part, in Trees Are Good's sole discretion.

Always use caution when giving out any personally identifying information about yourself or your children in any Communication Service. Trees Are Good does not control or endorse the content, messages or information found in any Communication Service and, therefore, Trees Are Good specifically disclaims any liability with regard to the Communication Services and any actions resulting from your participation in any Communication Service. Managers and hosts are not authorized Trees Are Good spokespersons, and their views do not necessarily reflect those of

Trees Are Good.

Materials uploaded to a Communication Service may be subject to posted limitations on usage, reproduction and/or dissemination. You are responsible for adhering to such limitations if you download the materials.

MATERIALS PROVIDED TO Trees Are Good OR POSTED AT ANY Trees Are Good WEB SITE

Trees Are Good does not claim ownership of the materials you provide to Trees Are Good (including feedback and suggestions) or post, upload, input or submit to any Trees Are Good Web Site or its associated services (collectively "Submissions"). However, by posting, uploading, inputting, providing or submitting your Submission you are granting Trees Are Good, its affiliated companies and necessary sublicensees permission to use your Submission in connection with the operation of their Internet businesses including, without limitation, the rights to: copy, distribute, transmit, publicly display, publicly perform, reproduce, edit, translate and reformat your Submission; and to publish your name in connection with your Submission.

No compensation will be paid with respect to the use of your Submission, as provided herein. Trees Are Good is under no obligation to post or use any Submission you may provide and may remove any Submission at any time in Trees Are Good's sole discretion.

By posting, uploading, inputting, providing or submitting your Submission you warrant and represent that you own or otherwise control all of the rights to your Submission as described in this section including, without limitation, all the rights necessary for you to provide, post, upload, input or submit the Submissions.

LIABILITY DISCLAIMER

THE INFORMATION, SOFTWARE, PRODUCTS, AND SERVICES INCLUDED IN OR AVAILABLE THROUGH THE Trees Are Good WEB SITE MAY INCLUDE INACCURACIES OR TYPOGRAPHICAL ERRORS. CHANGES ARE PERIODICALLY ADDED TO THE INFORMATION HEREIN. Trees Are Good AND/OR ITS SUPPLIERS MAY MAKE IMPROVEMENTS AND/OR CHANGES IN THE Trees Are Good WEB SITE AT ANY TIME. ADVICE RECEIVED VIA THE Trees Are Good WEB SITE SHOULD NOT BE RELIED UPON FOR PERSONAL, MEDICAL, LEGAL OR FINANCIAL DECISIONS AND YOU SHOULD CONSULT AN APPROPRIATE PROFESSIONAL FOR SPECIFIC ADVICE TAILORED TO YOUR SITUATION.

Trees Are Good AND/OR ITS SUPPLIERS MAKE NO REPRESENTATIONS ABOUT THE SUITABILITY, RELIABILITY, AVAILABILITY, TIMELINESS, AND ACCURACY OF THE INFORMATION, SOFTWARE, PRODUCTS, SERVICES AND RELATED GRAPHICS CONTAINED ON THE Trees Are Good WEB SITE FOR ANY PURPOSE. TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, ALL SUCH INFORMATION, SOFTWARE, PRODUCTS, SERVICES AND RELATED GRAPHICS ARE PROVIDED "AS IS" WITHOUT WARRANTY OR CONDITION OF ANY KIND. Trees Are Good AND/OR ITS SUPPLIERS HEREBY DISCLAIM ALL WARRANTIES AND CONDITIONS WITH REGARD TO THIS INFORMATION, SOFTWARE, PRODUCTS, SERVICES AND RELATED GRAPHICS, INCLUDING ALL IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE AND NON-INFRINGEMENT.

TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, IN NO EVENT SHALL Trees Are Good AND/OR ITS SUPPLIERS BE LIABLE FOR ANY DIRECT, INDIRECT, PUNITIVE, INCIDENTAL, SPECIAL, CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF USE, DATA OR PROFITS, ARISING OUT OF OR IN ANY WAY

CONNECTED WITH THE USE OR PERFORMANCE OF THE Trees Are Good WEB SITE, WITH THE DELAY OR INABILITY TO USE THE Trees Are Good WEB SITE OR RELATED SERVICES, THE PROVISION OF OR FAILURE TO PROVIDE SERVICES, OR FOR ANY INFORMATION, SOFTWARE, PRODUCTS, SERVICES AND RELATED GRAPHICS OBTAINED THROUGH THE Trees Are Good WEB SITE, OR OTHERWISE ARISING OUT OF THE USE OF THE Trees Are Good WEB SITE, WHETHER BASED ON CONTRACT, TORT, NEGLIGENCE, STRICT LIABILITY OR OTHERWISE, EVEN IF Trees Are Good OR ANY OF ITS SUPPLIERS HAS BEEN ADVISED OF THE POSSIBILITY OF DAMAGES. BECAUSE SOME STATES/JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES, THE ABOVE LIMITATION MAY NOT APPLY TO YOU. IF YOU ARE DISSATISFIED WITH ANY PORTION OF THE Trees Are Good WEB SITE, OR WITH ANY OF THESE TERMS OF USE, YOUR SOLE AND EXCLUSIVE REMEDY IS TO DISCONTINUE USING THE Trees Are Good WEB SITE.

SERVICE CONTACT : it@isa-arbor.com

TERMINATION/ACCESS RESTRICTION

Trees Are Good reserves the right, in its sole discretion, to terminate your access to the Trees Are Good Web Site and the related services or any portion thereof at any time, without notice. GENERAL To the maximum extent permitted by law, this agreement is governed by the laws of the State of Washington, U.S.A. and you hereby consent to the exclusive jurisdiction and venue of courts in San Mateo County, California, U.S.A. in all disputes arising out of or relating to the use of the Trees Are Good Web Site. Use of the Trees Are Good Web Site is unauthorized in any jurisdiction that does not give effect to all provisions of these terms and conditions, including without limitation this paragraph. You agree that no joint venture, partnership, employment, or agency relationship exists between you and Trees Are Good as a result of this agreement or use of the Trees Are Good Web Site. Trees Are Good's performance of this agreement is subject to existing laws and legal process, and nothing contained in this agreement is in derogation of Trees Are Good's right to comply with governmental, court and law enforcement requests or requirements relating to your use of the Trees Are Good Web Site or information provided to or gathered by Trees Are Good with respect to such use. If any part of this agreement is determined to be invalid or unenforceable pursuant to applicable law including, but not limited to, the warranty disclaimers and liability limitations set forth above, then the invalid or unenforceable provision will be deemed superseded by a valid, enforceable provision that most closely matches the intent of the original provision and the remainder of the agreement shall continue in effect. Unless otherwise specified herein, this agreement constitutes the entire agreement between the user and Trees Are Good with respect to the Trees Are Good Web Site and it supersedes all prior or contemporaneous communications and proposals, whether electronic, oral or written, between the user and Trees Are Good with respect to the Trees Are Good Web Site. A printed version of this agreement and of any notice given in electronic form shall be admissible in judicial or administrative proceedings based upon or relating to this agreement to the same extent and subject to the same conditions as other business documents and records originally generated and maintained in printed form. It is the express wish to the parties that this agreement and all related documents be drawn up in English.

COPYRIGHT AND TRADEMARK NOTICES:

All contents of the Trees Are Good Web Site are: Copyright 2023 by International Society of Arboriculture and/or its suppliers. All rights reserved.

TRADEMARKS

The names of actual companies and products mentioned herein may be the trademarks of their respective owners.

The example companies, organizations, products, people and events depicted herein are fictitious. No association with any real company, organization, product, person, or event is intended or should be inferred.

Any rights not expressly granted herein are reserved.

NOTICES AND PROCEDURE FOR MAKING CLAIMS OF COPYRIGHT INFRINGEMENT

Pursuant to Title 17, United States Code, Section 512(c)(2), notifications of claimed copyright infringement under United States copyright law should be sent to Service Provider's Designated Agent. ALL INQUIRIES NOT RELEVANT TO THE FOLLOWING PROCEDURE WILL RECEIVE NO RESPONSE. See Notice and Procedure for Making Claims of Copyright Infringement.



International Society of Arboriculture

www.isa-arbor.com • p. +1 678.367.0981 • isa@isa-arbor.com

©International Society of Arboriculture 2009-2023

Email comments and questions to ISA

Tuesday, September 26, 2023 7:52:25 PM (EST/ISA Headquarters Time)

Please click here to view our privacy policy.



Brought to you by ISA



SEARCH

MENU



Use our free tool



Find a professional



Free downloads



Trees Are Good is committed to protecting your privacy and developing technology that gives you the most powerful and safe online experience. This Statement of Privacy applies to the Trees Are Good site and governs data collection and usage. By using the Trees Are Good site, you consent to the data practices described in this statement.

Collection of your Personal Information

Trees Are Good collects personally identifiable information, such as your email address, name, home or work address or telephone number. Trees Are Good also collects anonymous demographic information, which is not unique to you, such as your ZIP code, age, gender, preferences, interests and favorites.

There is also information about your computer hardware and software that is automatically collected by Trees Are Good. This information can include: your IP address, browser type, domain names, access times and referring website addresses. This information is used by Trees Are Good for the operation of the service, to maintain quality of the service, and to provide general statistics regarding use of the Trees Are Good site.

Please keep in mind that if you directly disclose personally identifiable information or personally sensitive data through Trees Are Good public message boards, this information may be collected and used by others. Note: Trees Are Good does not read any of your private online communications.

Trees Are Good encourages you to review the privacy statements of Web sites you choose to link to from Trees Are Good so that you can understand how those Web sites collect, use and share your information. Trees Are Good is not responsible for the privacy statements or other content on Web sites outside of the Trees Are Good and Trees Are Good family of Web sites.

Use of your Personal Information

Trees Are Good collects and uses your personal information to operate the Trees Are Good Web site and deliver the

services you have requested. Trees Are Good also uses your personally identifiable information to inform you of other products or services available from Trees Are Good and its affiliates. Trees Are Good may also contact you via surveys to conduct research about your opinion of current services or of potential new services that may be offered.

Trees Are Good does not sell, rent or lease its customer lists to third parties. Trees Are Good may, from time to time, contact you on behalf of external business partners about a particular offering that may be of interest to you. In those cases, your unique personally identifiable information (e-mail, name, address, telephone number) is not transferred to the third party. In addition, Trees Are Good may share data with trusted partners to help us perform statistical analysis, send you email or postal mail, provide customer support, or arrange for deliveries. All such third parties are prohibited from using your personal information except to provide these services to Trees Are Good, and they are required to maintain the confidentiality of your information.

Trees Are Good does not use or disclose sensitive personal information, such as race, religion, or political affiliations, without your explicit consent.

Trees Are Good keeps track of the Web sites and pages our customers visit within Trees Are Good, in order to determine what Trees Are Good services are the most popular. This data is used to deliver customized content and advertising within Trees Are Good to customers whose behavior indicates that they are interested in a particular subject area.

Trees Are Good Web sites will disclose your personal information, without notice, only if required to do so by law or in the good faith belief that such action is necessary to: (a) conform to the edicts of the law or comply with legal process served on Trees Are Good or the site; (b) protect and defend the rights or property of Trees Are Good; and, (c) act under exigent circumstances to protect the personal safety of users of Trees Are Good, or the public.

Use of Cookies

The Trees Are Good Web site use "cookies" to help you personalize your online experience. A cookie is a text file that is placed on your hard disk by a Web page server. Cookies cannot be used to run programs or deliver viruses to your computer. Cookies are uniquely assigned to you, and can only be read by a web server in the domain that issued the cookie to you.

One of the primary purposes of cookies is to provide a convenience feature to save you time. The purpose of a cookie is to tell the Web server that you have returned to a specific page. For example, if you personalize Trees Are Good pages, or register with Trees Are Good site or services, a cookie helps Trees Are Good to recall your specific information on subsequent visits. This simplifies the process of recording your personal information, such as billing addresses, shipping addresses, and so on. When you return to the same Trees Are Good Web site, the information you previously provided can be retrieved, so you can easily use the Trees Are Good features that you customized.

You have the ability to accept or decline cookies. Most Web browsers automatically accept cookies, but you can usually modify your browser setting to decline cookies if you prefer. If you choose to decline cookies, you may not be able to fully experience the interactive features of the Trees Are Good services or Web sites you visit.

Security of your Personal Information

Trees Are Good secures your personal information from unauthorized access, use or disclosure. Trees Are Good secures the personally identifiable information you provide on computer servers in a controlled, secure environment, protected from unauthorized access, use or disclosure. When personal information (such as a credit card number) is transmitted to other Web sites, it is protected through the use of encryption, such as the Secure Socket Layer (SSL) protocol.

Changes to this Statement

Trees Are Good will occasionally update this Statement of Privacy to reflect company and customer feedback. Trees Are Good encourages you to periodically review this Statement to be informed of how Trees Are Good is protecting your information.

Contact Information

Trees Are Good welcomes your comments regarding this Statement of Privacy. If you believe that Trees Are Good has not adhered to this Statement, please contact Trees Are Good at it@isa-arbor.com. We will use commercially reasonable efforts to promptly determine and remedy the problem.



International Society of Arboriculture
www.isa-arbor.com • p. +1 678.367.0981 • isa@isa-arbor.com

*©International Society of Arboriculture 2009-2023
Email comments and questions to ISA
Tuesday, September 26, 2023 7:52:33 PM (EST/ISA Headquarters Time)
Please click here to view our privacy policy.*



Brought to you by ISA



SEARCH

MENU



Username:

Password:

Remember Login



International Society of Arboriculture
 www.isa-arbor.com • p. +1 678.367.0981 • isa@isa-arbor.com

©International Society of Arboriculture 2009-2023
 Email comments and questions to ISA
 Tuesday, September 26, 2023 7:52:40 PM (EST/ISA Headquarters Time)
 Please click here to view our privacy policy.