



Tree Owner's Manual

From Planting to Early Maintenance—Learn How to Do it Correctly

REMOVE TOP 1/3 BURLAP AND ANY NAILS/PINS, ETC.

REMOVE TOP 1/3 OF MULCH (BAGNET WHERE PRESENT)



Buying a Tree

Be sure to select the right tree for the spot!

- Check with your public works or parks/recreation department for information regarding preferred tree species and related information
- Seek advice from local professionals, including your county extension agent
- Assess your site conditions
 - Location: site appropriately with regards to structures and utilities
 - Cold hardiness: select tree suitable to your region, considering both cold and heat
 - Soil: get a soil test done to assess pH and nutrient content; assess drainage; and determine soil structure (compacted or loose?)
 - Exposure: amount of sun and wind
- What are you looking for in a tree?
 - Flowers/fruit
 - Fall color
 - Function: reduces energy costs, shade, screening, specimen, attracts wildlife

Mature size: remember trees grow, so be sure there is sufficient horizontal and vertical space to allow your tree to be great!

Here some additional steps to take prior to planting your tree:

- Call before you dig! It is easy, just dial 811 for FREE utility marking. Be sure to do this well in advance of planting, as it can take a few days to a week or more.
- There are 3 main types of planting stock: container-grown, ball & burlap (B&B), and bare root. Choose the type that works best for you. Each planting stock type has positives, and some limitations (i.e. you can only plant bare root trees when they are dormant.)



Container-grown plant



Ball and burlap plant



Bare root

Selecting High Quality Nursery Stock

Look for one central leader; if there are two leaders be sure it won't leave a large hole in the crown when you remove one.

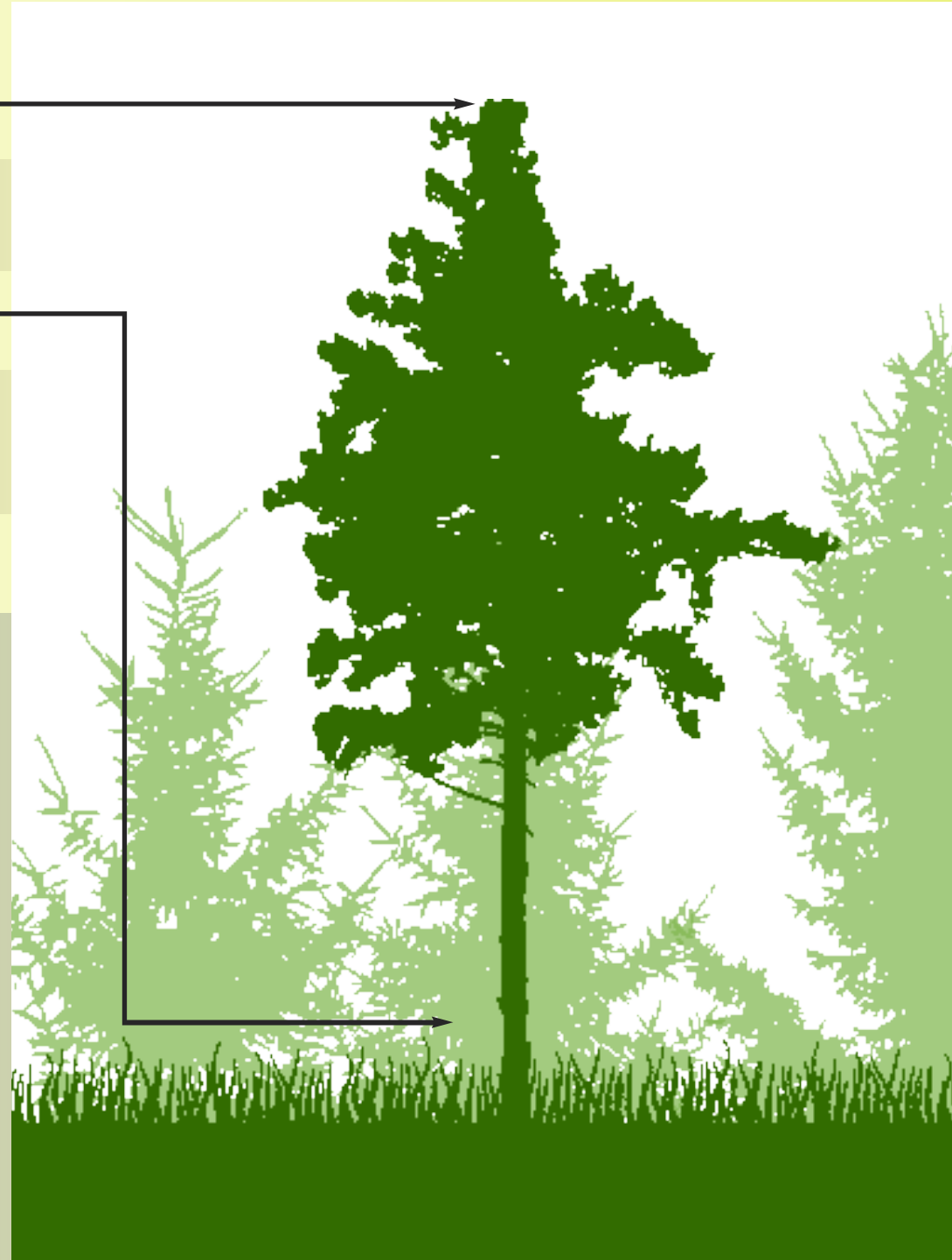
Crown height should be at least 60% of total tree height for deciduous stock and 75% for evergreen trees.

Be sure the trunk is not damaged, is centered in root ball and is not loose. Look for trunk flare, where the trunk meets the root ball.

There should be no more than 2-3" inches of soil on the top of roots, you may have to scrape soil away to find them. If you cannot find top most roots, plant just a bit above grade.

Look for these qualities whether you are buying a ball and burlap tree or one grown in a container.

It is always a good idea to record the following information about your tree: where and when you purchased it, warranty period, species and any other key information about its care or features.



Transporting Your Tree

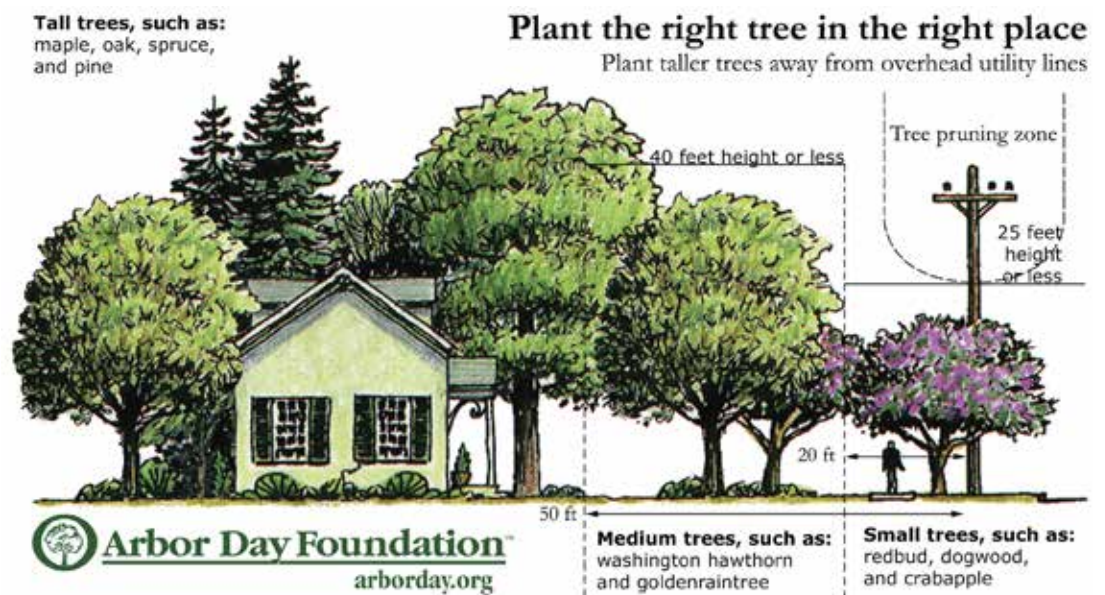
- Ask the nursery to tie up the branches of your tree; it makes it easier for you to transport.
- Do not lift tree by the trunk, always lift by the root ball or container. Make sure not to damage the trunk while transporting your tree, as any wound can cause permanent damage and potentially reduce life span!
- Never transport any plants in full leaf in an open truck bed or car trunk without first wrapping them with a tarp, burlap or a sheet. The plants will suffer wind burn and will likely lose all its leaves once you get it home.
- If you cannot plant your tree right away, follow these guidelines:
 - Keep the plants in a shady spot and well-watered.
 - Bare root trees need extra protection: pack wet newspaper, sawdust or mulch around the roots and wrap in a plastic bag. It is best to plant bare root trees within 2 days so the roots do not dry out. Bare root trees are typically transplanted when dormant.
 - B&B trees should be stored with mulch or a tarp around the root ball to prevent drying.



Pre-Installation Steps and Site Preparation

Step #1: Check for any Aboveground Obstacles

- Do not plant your tree where it will interfere with buildings, overhead utility lines, pavement, or street intersection sightlines as a young tree or when it reaches its mature size.
- Plant your tree – 3' from pavement or fencing; 15' from buildings; and >25' from overhead utility wires, if the tree will reach a height above 30'.



Step #2: Call Before You Dig!

- By law, you must contact 811 at least 72 hours before digging. The underground utility locating service will come to your home and locate all underground utilities.



**Know what's below.
Call before you dig.**

Step #3: Make sure you have the tools you will need to plant your tree properly.

- Gather the following:
 - Shovel, sharp knife (scissors), by-pass pruning shears and a soil knife (optional)
 - Water
 - Mulch (about 3-4 cubic feet, one or two bags)
 - Large-gauge wire cutters if planting a ball and burlap tree
- If you are planting your tree in a large bed area, be sure to till the soil and incorporate about 2" of compost. This will make it easier to plant not only your tree, but any additional plants you want to install.

Soil requirements for trees based on their size at maturity

Tree Size at Maturity	Total Soil Area	Distance from Paved Surface
SMALL Height: shorter than 30 ft	10 ft x 10 ft	2 ft
MEDIUM Height or spread: lesser than 50 ft	20 ft x 20 ft	6 ft
LARGE Height or spread: greater than 50 ft	30 ft x 30 ft	10 ft

*Measurements for when rootable soil depth is 3 feet or greater. For soil less than 3 feet deep, smaller maturing trees are recommended.



Planting Procedure

Step #1: Moving tree to location and prep

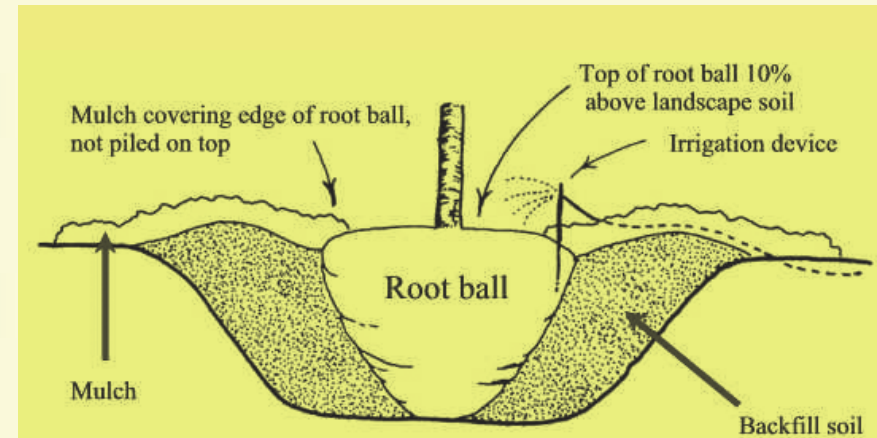
- Move tree to the planting location and remove trunk wrap if present. Remove twine from crown and any labels.

Step #2: Pruning and preparing plant

- Prune only broken or dead branches, or those that are rubbing. If there is more than one central leader, select the healthiest one and remove the other.

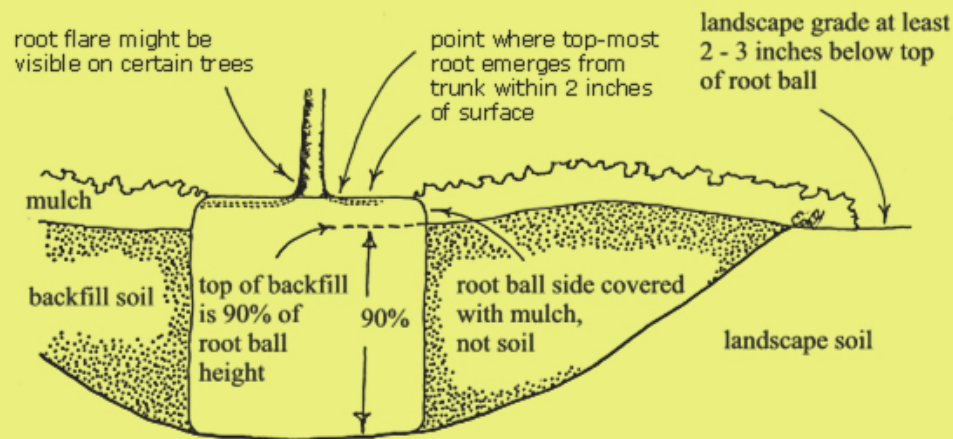
Step #3: Measuring for plant hole

- Determine how big the hole should be by measuring the root ball. You can use a measuring tape, yardstick or the shovel handle for a good approximation. Dig the hole only as deep as the root ball and at least 2-3 times wider. Place tree in hole; for B&B trees gently roll them into the hole. Make sure the tree's "best side" faces out, where most people will get to see it. Make sure to plant at or slightly above grade.

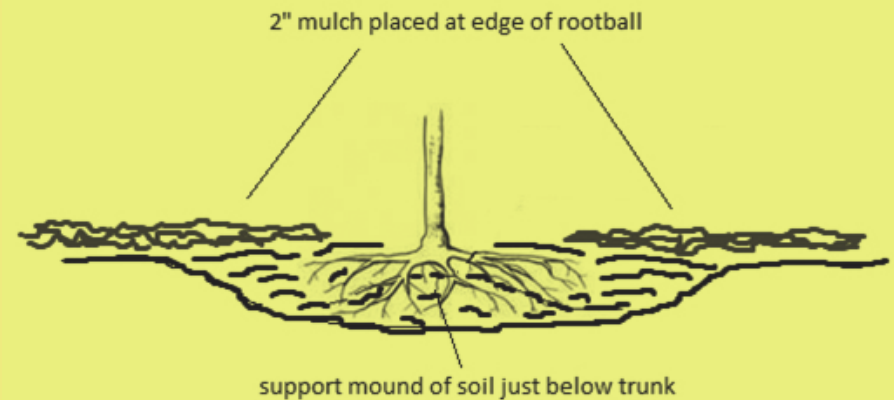


Plant detail for ball and burlap tree

Plant detail for container-grown tree



Plant detail for bare root tree



Step #4: Planting considerations

- For ball and burlap trees, remove any twine wrapped around trunk; remove the top 1/2 to 1/3 of the wire basket and pull the burlap down away from top of ball and cut off.
- For container-grown trees, use a sharp shovel to cut circling roots with vertical cuts every 8 inches or so around the entire rootball.
- For each of these planting stock types, fill planting hole about halfway, and then water-in. Finish adding soil to finished grade. Chop soil in hole with the end of your shovel to minimize air pockets. **DO NOT TAMP THE SOIL TOO FIRMLY**, as this will compact the soil making it harder for growing roots to penetrate.
- For bare root trees, once soil is placed in hole lightly firm to increase good root-soil contact. Be careful not to over compact.

Step #5: Berming your new tree

- Make a small berm around the outside edge of the hole to help direct water toward roots.

Step #6: Mulching around a young tree

- Put a 3-4" layer of mulch around the tree, from edge of root ball out. Never mound mulch up around the trunk. This may lead to animal or disease problems. There are many types of mulches available. Buy from a reputable seller, choosing the one that appeals to you. The best mulch is organic and breaks down slowly to add organic matter to the soil.

*Mulch breaks down slowly, adding organic matter to the soil.
There should never be more than 4" of mulch at any one time.*

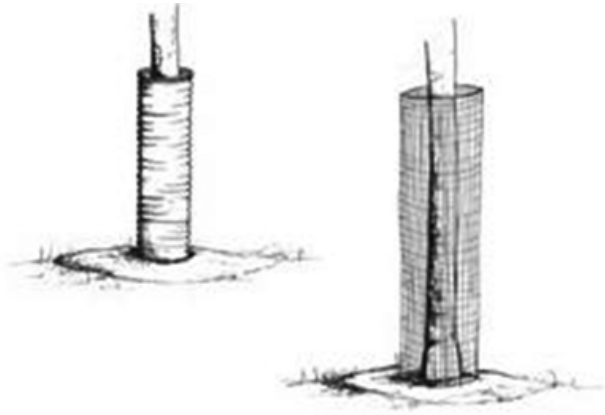


This picture illustrates how to cut a container-grown root ball to help prevent circling roots. Cut around the entire outside edge and cut through the ball radially around the root ball and in toward the trunk.

Picture borrowed from [www.http://hort.ifas.ufl.edu/](http://hort.ifas.ufl.edu/)



This "volcano" mulching is incorrect and can lead to tree health issues. Also note this tree was damaged by equipment that has caused a wound that will likely be a problem for this tree in the future.



Young trees often have thin bark that is easily damaged by animals and equipment, such as mowers and string trimmers. To prevent wounding that can lead to long-term damage, install a plastic tube or wrap, or hardware cloth around the lower 1-3' of the trunk. The wrap should be loose enough to allow the tree to grow. Push the tube or wire into the ground about 1 or 2". You can use trunk protection year round, but you should definitely use it during the winter months.

Watering

Proper water is the single most important thing you can do to ensure a long life for your tree. The first 3 years of the tree's life is critical, as this is when the tree is establishing in its new location and may be more susceptible to stressors, such as drought, insects and diseases.

How Often?

How often depends on soil drainage. Soils that drain quickly, such as sands, will require more frequent watering with less water than soils that drain more slowly, such as clays.

Apply about 5 gallons of water per caliper inch (diameter of trunk at 6" above the root ball), watering where the roots are- within the drip zone.

When?

Start checking soil moisture in spring and continue until the soil freezes.

Even mature trees can use some water during a prolonged drought. Apply water within the drip line with a soaker hose, allowing the water to infiltrate slowly over night.

You can also use a water bag for newly planted and younger trees.

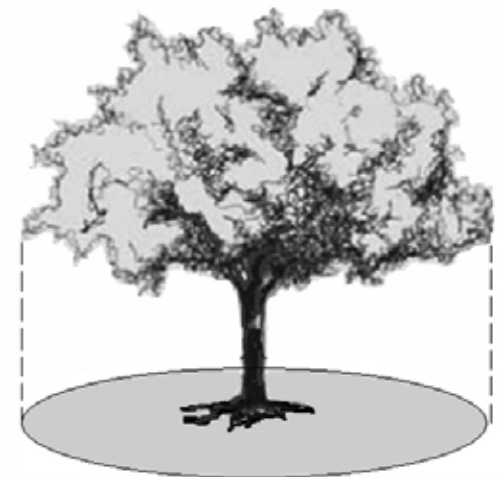
First 3 years after planting:

Check soil every couple of days to see if tree needs to be watered. For sandier soils, you may need to check more often.



After 3 years:

Check weekly during the growing season; apply water within the dripline as needed.

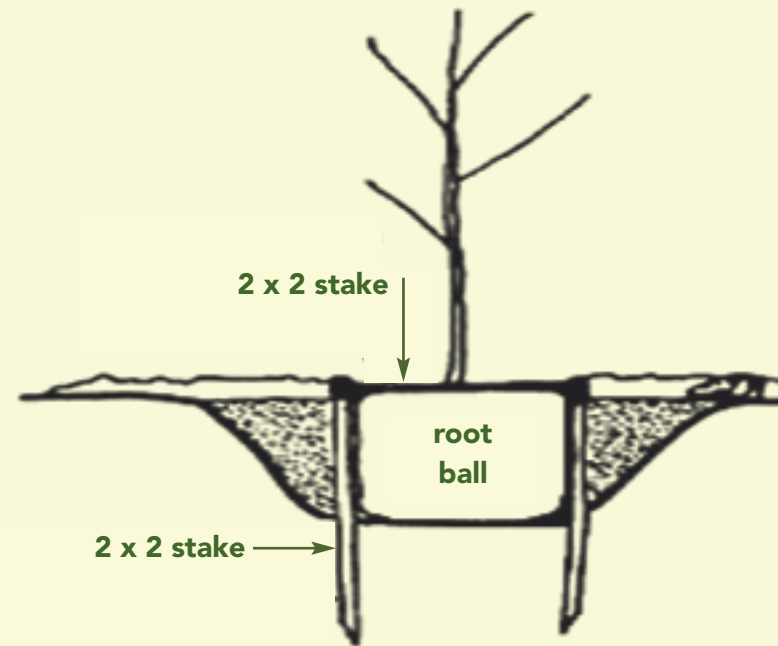




Be sure to remove the staking materials after 1 year.

Staking

In many cases it is unnecessary to stake trees, particularly in home landscapes. You will need to stake a tree when it is loose or seems unstable. Most likely you will need to stake bare root plant material, and some container-grown plants as their root balls are light in comparison to the top of the tree (especially when in leaf). To stake your tree, use three nylon straps looped around three main branches (not too tightly). Attach the straps to stakes (at least 1' in length) in the ground outside the planting hole. Try to place stakes so they will not interfere with mowing equipment. And the staking system should be removed after 1 year, otherwise you run the risk of girdling the stem or injuring the tree.



An alternate method of staking.

Requires 4, 4' untreated, wood grounding stakes, and 2 cross beams.

This method holds the rootball down without using above ground materials that can be unsightly and trip hazards. These stakes breakdown naturally, and do not need to be removed.



In general, do not remove more than about 30% of the tree's canopy at any one pruning event.

Tree Health

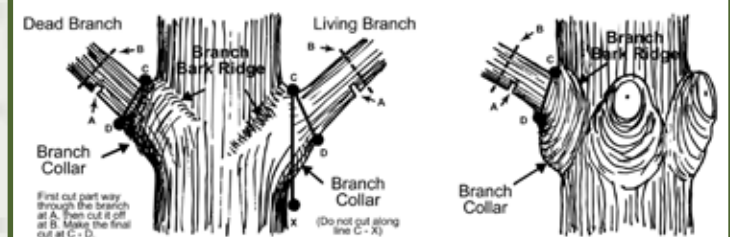
Check your tree yearly to assess its health. Look at the color, size and distribution of leaves. Are they appropriate for this species? Look for dead twigs or dieback. Look for any trunk damage. If anything seems amiss, contact a certified arborist to provide you with expert guidance.

Pruning

Pruning young trees is important to the development of good structure and health as the tree matures, and can help reduce maintenance costs. Remove dead or broken branches at anytime, also sprouts growing from base of trunk. You can begin major pruning **2 years** after the tree has established in its new home. Prune any time of year, but early spring is best, as the tree will soon begin growing and wound closure will occur quickly. Some species, such as maples, do exude a lot of sap when pruned at this time, so you may want to wait until mid-spring. Prune every other year, as needed to shape and maintain health. It is important to have a clear objective in mind when pruning a tree and then following the proper pruning cut to meet that objective. A proper pruning cut will almost always be done at a point of union and be made just outside the branch bark ridge (see picture below). For more details on proper pruning techniques, visit http://cals.ncsu.edu/hort_sci/extension/documents/ (There are four publications in this series.).



Proper Pruning Principles



Hardwoods

Conifers

This is a good pruning cut, placed at the branch collar. Do not use any wound paint or tar as this only traps decay-causing organisms in the wound.

Fertilization

Before applying any fertilizer, always obtain soil samples from the area where the tree is growing. This will show what nutrients are lacking. In general, applying ½ pound of Nitrogen per 1,000 sq. ft. of a slow release fertilizer in the fall, then again in the spring is an acceptable practice, and promotes healthy tree growth. Always make sure to follow the label instructions and avoid getting fertilizer on paved areas, as it can pollute water resources. If you do get some on the hardscapes, simply sweep or blow it off into the lawn area.

Wrap Up

To have beautiful, functional trees in your landscape is easy. Select the right tree for your spot; plant it correctly, maintain and water it well, and watch your investment grow. Having trees in your landscape is one good way to “PLANT IT FORWARD”, so generations to come will be able to reap the benefits! Trees are an important part of our home and city landscapes. They provide countless environmental, economic, and social benefits. They collect and slow stormwater runoff. A well-landscaped property can be worth up to 25% more on the retail market. Trees are not only beautiful, but can also provide us a sense of place, calm, and a connection to nature.



North Carolina Urban Forest Council

To learn more about the North Carolina Urban Forest Council and become a member visit our web-site at: www.ncufc.org

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Funding for this project was provided in part through an Urban & Community Forestry Grant from the North Carolina Forest Service, North Carolina Department of Agriculture, in cooperation with the USDA Forest Service, Southern Region.