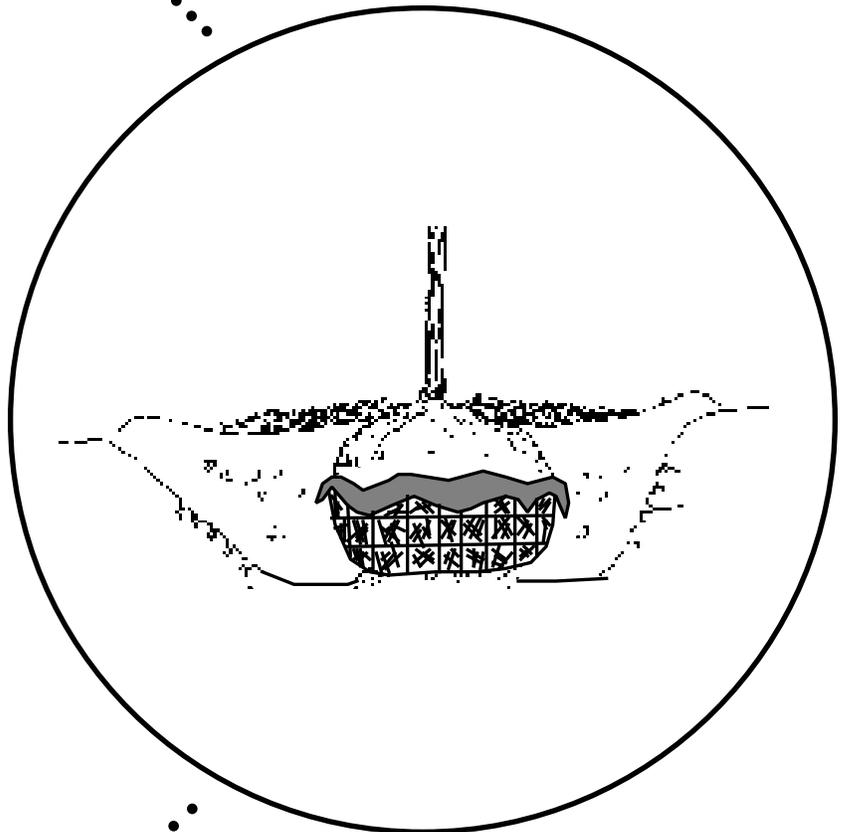


# Planting Woody Ornamentals



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# Planting Woody Ornamentals

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Spring is always the most popular planting season, but fall may be the best time to plant. In fall the shoots require fewer nutrients, due to the onset of dormancy. During the fall, food substances produced in the leaves are transported to the root system to enhance their growth and establishment. Root systems will continue to develop until the soil temperature drops below 45-50 degrees F. Fall planting often enhances the establishment of woody ornamentals in the landscape. It is extremely important to irrigate plants when fall-planted, because, traditionally, October and November are dry months and receive little if any rainfall.

A fall-planted ornamental will not require as much summer irrigation as the spring-planted ornamental. The fall root growth provides a tremendous advantage over the spring-planted ornamentals if irrigation is not available or if a drought or extreme heat develops.

Spring will continue to be a favorite time to plant, because it is human nature to want to be outside after the dreary winter months. It also promises another gardening opportunity to improve our landscapes. The choice of plant material at most garden centers is greater in the spring months, thus encouraging most homeowners to select and plant a diversified landscape.

## ***Hole preparation and planting***

When planting individual plants, it is important to dig the hole two to three times wider than the root ball. Dig the hole with sloped sides, rather than straight, to give the new feeder roots maximum room to grow, since most of them are in the top 12 inches of the soil. A wide hole provides room for roots to grow laterally and radiate from the plant, regardless whether you are planting containerized, balled-and-burlapped or bare-root plants.

If planting in well-drained soil, dig the hole as deep as the root ball. The hole should allow for the root ball to sit on solid ground rather than loose soil. Digging a hole deeper than the root ball and returning loose soil will cause the plant to settle and subsequently be planted too deep. Laying a shovel handle across the hole helps to set the root ball at the correct height.

Planting a little high is better than planting too deep.

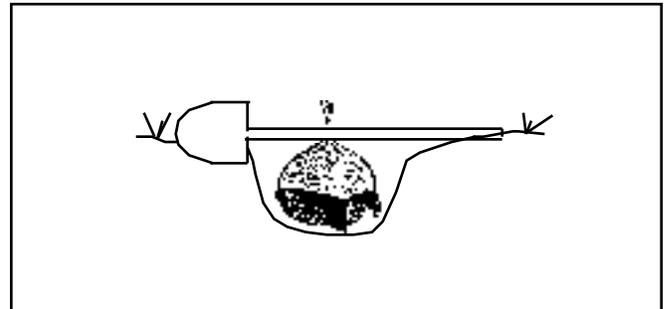


Fig. 1a. Balled and Burlap

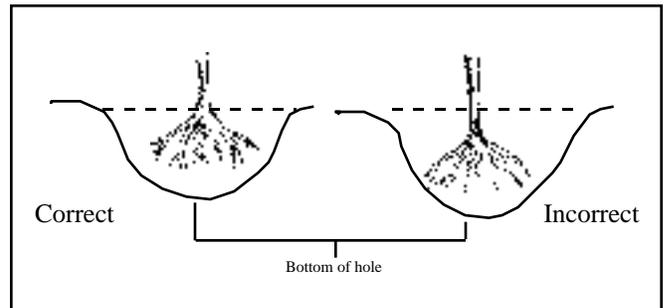


Fig. 1b. Bare-root

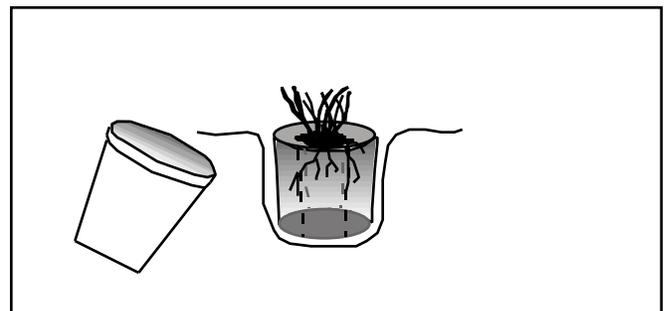


Fig. 1c. Container

**Figure 1. Proper planting depth.**

Use a shovel or spade to scarify or roughen up the sides of the hole to prevent glazing. Glazing occurs when the soil has a high clay content and enough moisture to create a slick, nonporous barrier. Roughening the soil will ensure the roots have a loose porous soil to grow into.

In areas with poorly drained soil, dig the hole 1 to 2 inches shallower than the root ball. After planting, cover the exposed root ball with mulch. This will raise the root ball up enough to allow for drainage out of the root zone. This technique is often used when planting azaleas, rhododendron and other plants susceptible to root rots. Another technique is to plant on top of the ground. This does not require a hole at all. Merely place the root ball on top of the ground and mound around the root with a well-drained soil or fine mulch. These plants will need monitoring for irrigation needs.

Planting recommendations have changed over the last few years. Two major changes are: 1) the size and depth of the planting hole, and 2) the use of soil amendments in the backfill. The soil in the average landscape is less fertile and more compacted after construction due to the use of heavier construction equipment and the removal of topsoil. The assumption that soil amendments would be helpful to the plant's establishment and survival has not been proven in research.

Digging a hole in dense, compacted soil and filling the hole with peat moss or other soil amendments is likely to create a 'pot' that can become a coffin for the roots. The roots grow outward in the amended soil, but do not penetrate and grow well into the native soil; thus the plant slowly declines.

Some planting recommendations suggest mounding soil at the outer edge of the planting hole to form a water-holding berm. The only time a berm should be used is when planting on a slope. The berm will help hold water, but more importantly it will prevent soil erosion around the planting hole.

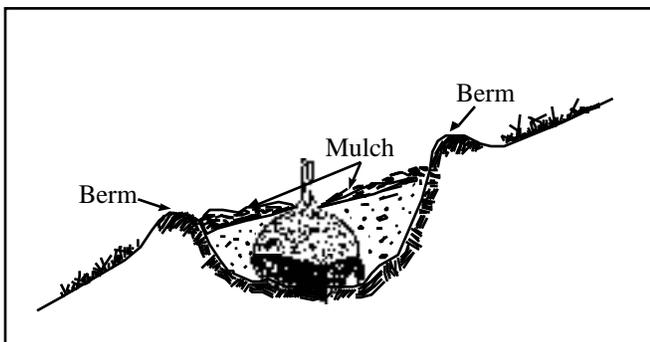


Figure 2. Planting on a slope.

## ***Bed preparation***

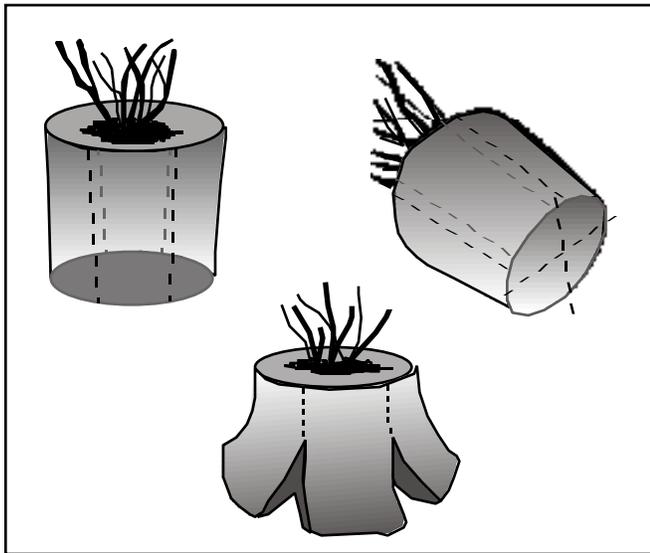
When a group of trees, shrubs or flowers is planted in one area, it is best to prepare the soil uniformly instead of planting in individual holes. Begin by tilling to a depth of 8-10 inches. If organic material or topsoil is used, spread evenly over the tilled soil; then till again. Mixing 2 to 3 inches of organic material into the entire bed will improve the soil tilth, soil texture and water-holding abilities. Organic matter has a weak negative charge, and as the organic matter biodegrades, it aids in the retention of positively charged nutrients. One cubic yard of organic material applied 3 inches deep will cover 100 square feet of planting bed. Organic materials available in Tennessee are municipal compost, cotton gin waste, rice hulls, poultry litter, well-rotted sawdust and commercially prepared amendments. A word of caution: the composting of organic material will vary between producers, resulting in some material not suitable for landscape use.

After tilling the planting area, broadcast lime or other nutrients as indicated by the soil test. Incorporating the organic matter, lime and nutrients to a depth of 8 to 10 inches places the nutrients in the root zone area. Rake the soil surface smooth to ensure that some of the plants do not end up in low spots where water can accumulate.

The bed is now ready to plant. It is not necessary to dig wide holes in the beds, because the entire soil area has been tilled. Hole depth should be the same as the plant's root system or slightly less to allow sufficient drainage. When a root system of larger trees or shrubs requires a hole deeper than the worked soil, then apply the same principles used for an individual planting hole.

## ***Planting container plants***

Water container plants prior to planting. Remove the container or plastic bag from the plant. If you are not sure whether fiber pots have been treated with a preservative, remove them before planting. Check the roots and cut any circling or girdling roots. Do not be afraid to cut the roots. Use a sharp knife to make three or four vertical cuts down the root system. The cuts should be about 1/4 inch deep or enough to sever the visible circling roots. This is a form of pruning and will stimulate new root growth. Gently massage the root ball to expose other roots to the surrounding soil.



**Figure 3. Diagram of a scored root ball.**

Place the plant in the hole so the top of the container soil is even or 1 to 2 inches above the soil grade. Backfill half of the hole with existing soils. It is not necessary to amend the backfill with organic matter such as peat moss. Adding organic matter in an individual hole may cause a problem with internal drainage of the planting hole and surrounding area. Water the root zone thoroughly. This is particularly important with containerized plants. The container media will dry out much quicker than the natural soil. Watering at this point also helps to settle the backfill and remove large air pockets.

Finish backfilling with existing soil and water again. Rake the soil evenly over the entire area, so the backfill is even with the existing soil line. The top of the container media (soil) will be visible. Cover the entire area with 2 to 3 inches of mulch.

### ***Planting balled-and-burlapped plants***

When handling balled-and-burlapped plants, lift the plant by the root ball and not the trunk. Large plants may require two or more people to carry them, or use a tree dolly to transport the plant to the site. If you do not plan to set the plants immediately, place them in the shade and keep the root ball moist. The root ball can be covered with moist sawdust or bark until planting time to help retain moisture and provide limited protection from drying winds and cold temperatures.

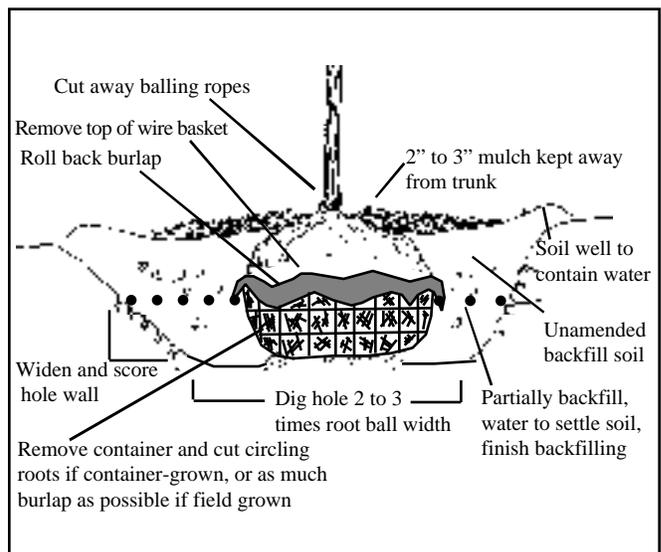
Small balled-and-burlapped plants are either hand dug or machine dug at the nursery, wrapped with burlap and secured with twine and pinning nails. Large balled-and-burlapped plants are dug with a mechanical spade and often placed in wire baskets at the nursery.

The wire basket helps support the root system until the plant is established in the landscape.

Measure the depth and width of the root ball to make sure the planting hole is the same depth (or a couple of inches shallower to allow for settling) and about two to three times wider. Do not remove the burlap from the root ball before it is set in the planting hole. Place the root ball in the hole. The plant should be sitting on solid ground rather than loose soil. Untie any rope, jute or nylon twine that is tied on the trunk of the plant. Pinning nails should also be removed from the top of the root ball. Fold the burlap down (about one-third) around the root ball. Do not allow the burlap to extend above the soil surface, since it will act like a wick and draw needed soil moisture away from the root ball. It is not necessary to remove the wire basket from large trees and shrubs. Cut off only the top ring of the wire basket. The lower portion of the wire basket will help support the root ball until new roots start growing. Cover the folded burlap with the backfill or cut off the top third of the burlap.

Backfill half of the hole with existing soil. Do not amend the backfill with organic matter such as peat moss. Adding organic matter in an individual hole may cause a problem with internal drainage of the planting hole and surrounding area. Water the root zone thoroughly. Watering at this point helps the backfill settle and removes large air pockets.

Finish backfilling and water again. Rake the soil evenly over the entire area so the backfill is even with the existing soil line. Cover the entire area with 2 to 3 inches of mulch.



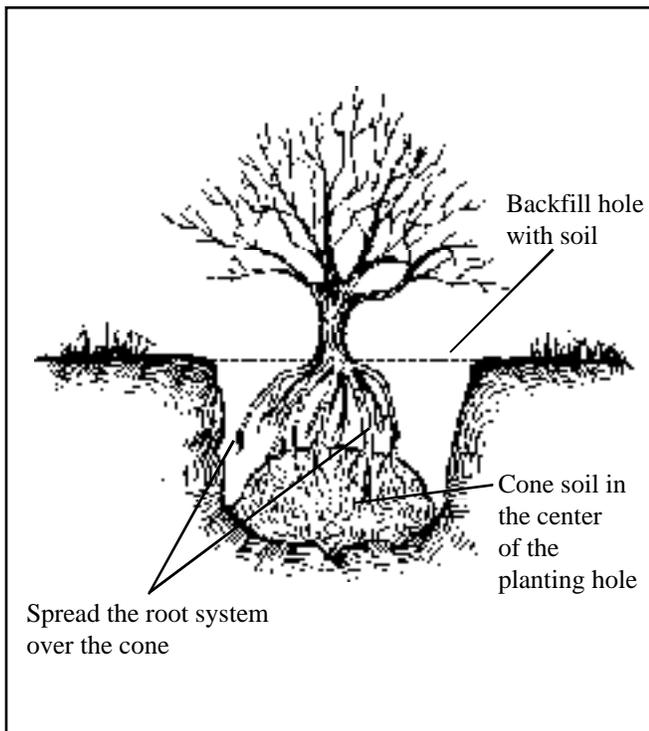
**Figure 4. Planting a B&B plant.**

## *Planting bare-root plants*

Easy-to-transplant plant species are frequently sold without soil around their roots. They are more perishable than balled-and-burlapped or container-grown plants. Some may be marketed with their roots in plastic bags with damp sawdust.

Keep the root system moist if plants are not installed immediately. Remove any packaging material from the root systems. Soak roots from an hour up to 24 hours before planting. Remove any roots that are broken, diseased or circling over other roots and the trunk.

The hole for bare-root plants should be large enough to permit the roots to be spread out in a normal manner without being twisted or cramped. Replace sufficient soil to create a mound or cone in the center of hole. Hold the plant in place at the proper depth, and spread the root system over the cone. The mound helps to support the roots when the backfill is put back in the hole. Gradually add soil back over the root system. Gently press or firm the soil as it is added to the hole to eliminate any air pockets. When the hole has been filled about two-thirds, fill the rest of the hole with water. After the water has soaked in, finish backfilling the hole. Water the planting hole again. Rake the soil evenly over the entire area so the backfill is even with the existing soil line. Cover the entire area with 2 to 3 inches of mulch.



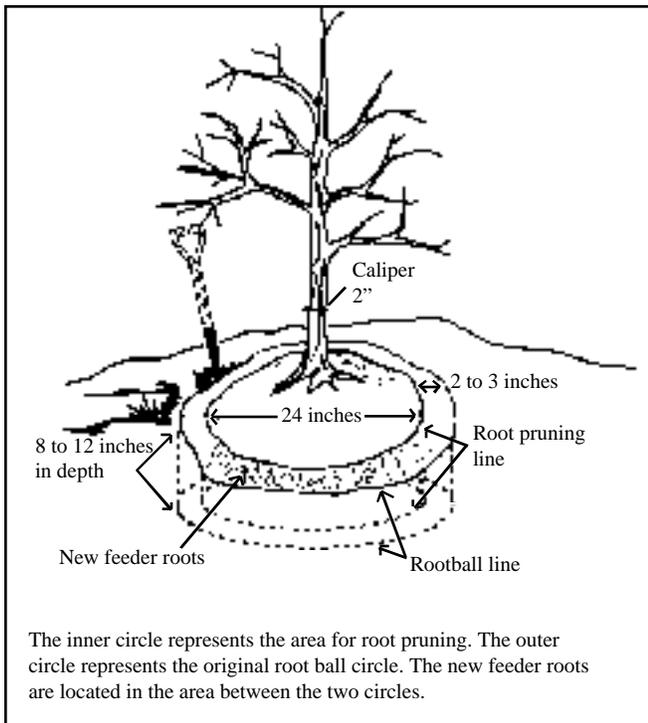
**Figure 5. Planting a bare-root plant**

## *Transplanting established plants*

Start preparing plants for transplanting, at least six months to a year before moving the plant. Determine the proper size of the root ball and draw a circle on the ground around the trunk. The American Nursery and Landscape Association recommends a 10-12 inch root ball for every inch of the plant's caliper. The caliper or diameter of the main stem is measured at about 6 inches above the ground. If a plant has a caliper of 2 inches, the root ball should be 20-24 inches in diameter.

After drawing the circle on the ground around the trunk, draw a second circle about 2 to 3 inches inside the first circle. Using a sharp spade, spade about 8-12 inches deep halfway around the inner circle. New feeder roots will develop from the severed roots. Six months later repeat the process on the remaining half of the inner circle.

About six months later (during the dormant season), the plant is ready for transplanting. Water the plant a couple of days prior if soil moisture is low. Tie the branches out of the way with twine. Dig a shallow trench around the outside of the original root ball circle. The new feeder roots that grew from the point of spading will be inside the root ball. The root ball should be about two-thirds as deep as the diameter. Dig completely around the root ball with care to keep the root ball intact. Gently roll the ball to one side and place a large piece of burlap around the root ball. Roll the root ball to the other side so the burlap will cover the entire root ball. Firmly wrap the burlap and tie it around the root ball for the move. A root ball 20-24 inches wide may weigh several hundred pounds. For easier handling and to reduce lifting, carefully roll the root ball onto a tarp and drag the plant to the new planting site. Plant the tree or shrub according to the planting procedures described earlier.



**Figure 6. Steps in transplanting**

### ***Pruning at time of planting***

It is not necessary to prune woody ornamentals at transplanting. The logic seems good to prune at planting – the field-grown tree or shrub had a substantial amount of roots left at the nursery, and pruning back the shoots to match the root loss should balance things out. In fact, research has proven that plants cut back at planting grew no better than plants not pruned, and in some instances were less than non-pruned plants.

One reason not to prune at planting is the removal of vital plant tissue that contains plant hormones like auxins. Auxins are stored primarily in the shoot tips and stimulate bud break in the spring. Removing these tips may promote leggy and lush growth of lateral shoots or delay bud break in spring. At the same time the endogenous auxin inhibits the plant's lateral growth, it stimulates root growth. Thus pruning at planting can induce the growth of unwanted lateral shoots while suppressing needed root growth.

Another important reason not to prune at planting is to maintain the correct shape of the plant. Often, improper pruning destroys the central leader of a tree or deforms the growth of a shrub.

### ***Mulching***

Mulch is needed to help conserve moisture for the plant's use, maintain even soil temperatures and to inhibit weed growth.

Proper application is important. A 2- to 3-inch layer of mulch with a diameter about three to four times the diameter of the root ball is adequate for most plants. Any less than this may not control weeds or reduce moisture loss. Mulch more than 4 inches deep can be detrimental to the plant. Excessive application of mulch can impede water and air movement above the root system.

Organic mulch should not come in contact with the trunk or stem of the plant. Simply remove the mulch with your hand or a shovel, using care not to nick the bark of the plant. Mulching materials often hold enough moisture to keep the bark continually wet and could cause decay of the bark.

### ***Watering***

Watering newly set plants is essential for rapid establishment in the landscape. The amount of water is dependent on the soil type, rainfall and plant species. Check the moisture content of the soil prior to watering. If the moisture level is high, then oxygen levels can be low and the plant can suffocate from lack of oxygen. A good rule is to water at about five- to seven-day intervals with enough water to saturate the root ball. A strong root system will produce a better plant, which is able to withstand dry periods later. Light, frequent waterings will keep the soil surface moist but not the entire root system. This harmful practice encourages plants to develop a shallow root system that can desiccate or dry out during prolonged droughts.

A large number of plants are killed from the time between leaving the nursery and planting in the landscape due to mishandling. Proper methods of transporting and handling these plants can greatly reduce the losses experienced by the homeowner and contractor. Avoid windburn or desiccation of the plant by covering plants with a tarp or cover during transport. Lift plants by the root ball to prevent the roots from breaking from the main stem of the plant. Using the planting techniques described here should start your plants off to a long and healthy life.

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