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Planting Bareroot Trees and Shrubs in Your Landscape

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Many landscape plants can be installed as bareroot specimens. This method, along with balled and burlapped (B&B) and container grown plants, one of the three major ways we transplant trees and shrubs from nurseries to our landscapes. The keys to quick establishment and decades of satisfaction are following proven techniques in installation and providing proper care after transplanting.

Why Bareroot?

There is no one best method (bareroot, container grown, or balled and burlapped) of buying and establishing plants in landscapes. Each have advantages and disadvantages. Bareroot plants are light weight and easy to handle. This makes them less expensive to ship. Without the possibility of soil carrying diseases and insects, bareroot plants can be shipped with fewer concerns over spreading invasive pests or weeds. The expense of digging, protecting the roots and shipping will generally be less than other production methods.

It also is easy to inspect the roots before planting. Roots that are broken or crushed should be cut back to a point where the root is not damaged. Roots that circle or cross the trunk can be straightened out. Since it is easy to see the roots it is also easy to make sure that roots are not planted too deep.

The disadvantage of bareroot plant material is that the roots are subject to temperature extremes and drying. When this happens, the roots and ultimately the entire plant dies. Bareroot plants should never be exposed to freezing temperatures or temperatures above 70°F to 75°F. If the plant cannot be planted immediately it should be wrapped in wet newspaper, sawdust, mulch or temporarily have soil put over the roots. Shady areas are better than sunny areas for temporarily holding plants before installing. It only takes a few minutes on a hot day for exposed roots to desiccate.

Bareroot plants can be installed in fall, winter or spring. If the plant is marginally hardy it should be planted in the spring. It is also important that the soil pH and other cultural conditions are appropriate for the species you have decided to plant.

Inspect the roots when they are unwrapped. If you see broken, crushed, or damaged roots, they should be removed using a sharp pair of pruners. Unlike stems, it is okay to make the pruning cut immediately behind the broken portion.

The Planting Hole

The quality of the planting hole is one of the most important factors. Don't take short cuts here. The general rule of thumb is that the planting hole should be at least two to three times the diameter of the root system. The

Do not allow roots to dry out after unwrapping the plants.

wider you dig the planting hole, the more rapidly your new plant will become established and grow. The harder, more compacted your soil is, the more important it is to dig an even wider planting hole.

You can't dig a planting hole too wide, but it is important to make sure that the planting hole is never deeper than the height of the root system. When planting bareroot plants it is important that the roots be spread out in all directions and not forced into a planting hole that is too small. Backfill will settle. If it settles below the root system it can result in a depression that will collect water, roots that are too deep and allow the plant to settle irregularly. Oxygen in soil is essential for healthy root development and uptake of water and mineral elements. Plants with root systems that are too deep will be predisposed to root diseases.

Checking the Drainage

Certain sites can have poor drainage. Water standing for extended periods of time is always a reason for concern, as is the presence of blue-gray clay. Soil that is too hard to easily dig a planting hole is an indication of compacted soil. If you find any of these concerns, you should dig the planting hole and fill it with water. The water should drain at the rate of 1 to 3 inches per hour. If the planting hole has not fully drained after 24 hours, you should fill it in and find another spot to plant. If a tree or shrub is essential for this location, you can select a floodplane species such as alder or bald cypress. Small shrubs can be grown if raised beds or berms are used to provide sufficient soil volume and adequate drainage. Raised beds and berms must be watered more frequently during droughts.

Into the Planting Hole

Bareroot plants are lightweight, an advantage in shipping them to you and you carrying them to the planting site. Make sure that the planting hole has been dug to the correct depth and you are ready to plant it before you expose the roots to the air. The less time the roots are exposed to the drying effects of air and light, the better.

Trees sometimes have a spot of light colored paint on the trunk just above the soil line. This indicates which direction was north in the production nursery. Orientating the plant in the same direction as it was growing in the nursery may reduce damage from the hot, southern sun. If you cannot determine the former orientation of the tree, locate it so that the best side will be seen most frequently.

Carefully place the root system in the planting hole. The hole should be at least two, preferably three times the diameter of the root system. This will allow the new roots to be able to grow rapidly through the loosened soil and will decrease the time it takes plants to become reestablished in your landscape.

It is important that the upper roots are only 1 or 2 inches below the surface. A broomstick or small board laid across the top of the planting hole will help you see how much to raise or lower the tree. Planting too deep will prevent the roots from getting enough oxygen. Planting too high will allow the roots to dry out too quickly.

If you mistakenly dug the hole too deep, add the appropriate amount of soil to the bottom of the planting hole and tamp it. This will ensure that it will not settle leaving a depression that could hold water.

The only thing that should go back into the planting hole is the soil that came out of the hole, less any foreign materials like rock and construction debris (brick, metal, wood, etc.). This is especially true for sites with heavier, more poorly drained soils. Organic matter or sand added to these soils may make them drain even more slowly. Research has shown that the planting hole acts like a bucket, inhibiting the drainage of water from the loose, porous amended backfill into the unamended

clay. The exception is where large, raised mounded beds are being created for growing shrubs like rhododendrons and azaleas.

While holding the trunk so the roots are at the correct depth, use your other hand to gently work soil throughout the root system. Gently firm the soil around all of the roots. Enlisting another person to hold the tree upright will make this easier. Make sure that all major roots are heading away from the trunk and, if possible do not cross other roots.

When the planting hole is about half or three quarters filled and you have gently firmed it, fill the hole with water. This will settle the soil and remove air pockets. Stomping the soil to firm it will damage roots and compact the soil. Roots will have difficulty growing through layers of compacted soil.

When the water has drained and the soil has settled, continue adding soil to the planting hole working it throughout the root system until the hole has been filled. Build a small donut-shaped dike around the outside of the planting hole and refill with water to settle the upper layer of soil and remove any air pockets. If the soil (but not the roots) has settled, add more soil to bring the level up to that of the surrounding soil. Remember, the upper most roots should not be any deeper than 1 to 2 inches below the surface.

Staking

Unlike balled and burlapped and container grown plants, bareroot plants do not have the weight of soil around their root systems. Bareroot trees will need to be staked to keep them from leaning. Bareroot shrubs are much shorter and rarely need to be staked unless they are large.

The objective of staking bareroot trees is to keep them from developing a lean, not to eliminate movement. It is actually advantageous for the trees to move and sway in the wind. Research shows that this encourages root development, increases trunk caliper (diameter) and keeps the tree from becoming too tall, too fast.

Bareroot trees should be staked by driving three equally spaced stakes vertically into firm soil outside the planting hole. The stakes should be two-thirds the height of the tree and the ties between the tree and the stake should be horizontal. The ties should be a broad, cloth-like material that has some elasticity. Nylon stockings may not be pretty but work well. Never use a string, rope or wire even if it runs through a piece of water hose. Water hose does not protect the trunk and will cause significant damage to the trunk.

Bareroot trees do not have soil around their root system and will need to be staked to ensure that they are not uprooted from the soil.

Staking materials should be checked frequently to make sure that the trunk is not being damaged. Trunks begin increasing in diameter in February, long before leaves come out. All materials used in staking trees should be removed after one year. It is rare that staking is needed into the second growing season.

Mulch

Two inches of mulch should be placed on the soil surface around your plant. This layer of mulch should go out from the trunk for a minimum of two to three feet and should not touch the trunk or bury branches on shrubs.

Pruning

Trees and shrubs should not be pruned to compensate for roots lost in the process of transplanting from the nursery to the landscape. The exception is corrective

pruning. Remove broken branches or branches that will not recover. Branches that are already crossing (rubbing) and co-dominant (double) leaders should also be removed. All other pruning should be deferred until the following year.

Post-planting Care

For the first year the most important thing for your newly planted tree or shrub is water. Water is more important that fertilizer or soil additives. Most trees and shrubs that die in the first year after planting die as a result of improper (too little or too much) watering.

After the plant has been through one full growing season it is acceptable (but not required) to fertilize the plant. This can be done by adding 1 to 2 pounds of actual nitrogen per 1,000 square feet. Trees and shrubs should be fertilized in the late fall (Thanksgiving to Christmas). Avoid fertilizing in the spring or summer. If you are already fertilizing your lawn it is not necessary to add additional fertilizer for the woody plants. Your local county extension agent for horticulture or agriculture and natural resources will be glad to assist you with fertilizer and rates.

All Photos by William M. Fountain

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