

HO-91

Planting Balled and Burlapped Trees and Shrubs in Your Landscape

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

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 as wide as the soil ball. The wider you can 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 a wide 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 soil ball is tall. Digging a planting hole deeper than necessary and backfilling it, even if you firm the soil, is an exercise in futility. The soil is going to settle, resulting in

a depression that will collect water and leave the roots too deep. Oxygen is necessary for healthy root development, and it is found in abundance only near the soil surface. Roots that are too deep do not have enough oxygen to take up water and mineral elements. Allowing water to collect further reduces the amount of oxygen in the soil and will predispose plants to root diseases.

If the soil has a lot of clay or is wet, the sides of the planting hole may become glazed as you dig, resulting in a smooth, shiny surface. This thin glaze will limit the ability of roots to penetrate the surrounding soil. The best solution is to scratch the glazed surface with a hand cultivator or shovel to expose the natural soil.

Checking the Drainage

Certain sites can have poor drainage. Water stands for extended periods of time is always a reason for concern, as is the presence of blue-gray clay. If you find either of these concerns, you should dig the planting hole and fill it with water. If it 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 floodplain

species such as alder or baldcypress. Small shrubs can often be grown if the site can be mounded sufficiently to provide sufficient soil volume and adequate drainage. Mounds must be checked more frequently during droughts.

Into the Planting Hole

Soil balls can be heavy. If you cannot easily pick up the soil ball, get help. Dropping a soil ball or lifting trees or shrubs by their trunks strains or breaks roots. Root damage results in slow plant establishment or even death of the plant.

Carry the soil ball, do not roll it. Rolling the soil ball will cause a glaze to form on the surface of the soil ball. Young roots may not be able to exit the soil ball and grow into the backfill.

Trees sometimes have a spot of paint on the base of their trunks. This indicates which direction was north in the production nursery. Orientating the tree in the same direction as it was growing in the nursery has been shown to reduce damage to the trunk 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.

As mentioned, it is imperative that trees and shrubs be planted no deeper than they were previously growing. Many plants coming from nurseries have been mechanically harvested and are deeper in the soil ball than is desirable. Probe around in the soil at the top of the root ball until you find the uppermost root coming out of the trunk. This root is called the first order root. It should be no more than one or two inches below the soil surface. Planting first order roots any deeper can result in smothering of the plant's root system.

Carefully lower the soil ball into the planting hole making sure that it is at the proper depth. Only after the root system is at the proper depth should the binding materials be removed. If the soil ball is loose or likely to crack, place a little soil

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| <ul style="list-style-type: none"> • Dig wide planting holes at least two or three times the diameter of the soil ball. • Roughen the shiny glazed soil from on the edges of the planting hole. • Make sure that the planting hole will drain within 24 hours. • Find the first order roots (highest roots coming out of the trunk). Dig the planting hole so that the first order roots are no more than 2 inches | <ul style="list-style-type: none"> below the soil surface. • Handle the soil ball with care. Do not roll it or drop it. • After the soil ball is located in the planting hole, cut and remove all twine from the soil ball. Remove the wire basket (if one is present) and the burlap down to the bottom of the soil ball. (It is not necessary to remove these materials from the bottom of the soil ball.) Dispose of these materials in a | <ul style="list-style-type: none"> responsible manner. • Backfill the planting hole with the same soil that came out of the hole. Do not amend the soil. • Firm the backfill by watering it in; do not compact the soil by stomping. • Water the soil ball and the backfill regularly. Do not let the soil ball dry out excessively or become saturated during the first year. |
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around the base so that it will stand up without falling over.

Cut and remove all twine, both plastic and natural jute from around the soil ball. It is not acceptable to just cut it and leave it in the planting hole. Twine is no longer needed and can girdle roots or the trunk as the plant grows.

Many trees and shrubs have wire baskets around their root balls. Baskets provide support for the root ball from the time it leaves the production nursery to the time it is resting in the bottom of the planting hole. Once the plant is in the ground, wire baskets are not only no longer beneficial, they become a liability. If pieces of wire stick up out of the ground, they can be hit by lawnmowers. Flying shards of metal can result in broken windows, serious personal injury or even death.

Wire baskets will remain structurally sound for decades. Through the years, roots will grow around the wire, preventing water and mineral elements from moving up into the tree. Wire baskets can also cause tree failure by creating a structural defect where roots can break.

All trees eventually die. If after decades the tree has completely overgrown the wire basket, it can potentially become a hazard again. Stump grinders or chainsaws can encounter wire baskets, resulting in damage to equipment or personnel from flying metal. While the damage to tree roots is generally minimal, leaving the wire baskets in the planting hole is in no way beneficial to the plant and may potentially result in tree damage or failure or personal injury.

Our objective is to give every plant every opportunity to thrive. This approach requires that we remove as much of the basket as possible. Digging wide planting holes not only helps roots establish more rapidly, the practice makes removing the wire baskets and other materials around the root ball easier. Use bolt cutters to get as deep into the planting hole as possible and cut away as much of the wire basket as you can reach. If you cannot remove the wire from under the plant it can be left in the planting hole. Remove at least all of the upper two rings of wire.

Like wire baskets and twine, burlap should also be removed. The nursery

industry generally uses two types of burlap: natural jute and synthetic. Synthetic burlap may contain limited amounts of plastic fibers, or it may be composed entirely of plastic fibers. Plastics will not degrade for decades. Long before these plastics degrade, they will confine the roots, resulting in death of the plant.

Even professionals may have trouble distinguishing natural jute burlap from the synthetic look-alikes that are more commonly used in production nurseries. Jute burlap is made from a plant fiber and breaks down relatively rapidly. Still, the time for this to happen is measured in weeks. In the meantime, plant roots continuously require access to water. Jute burlap acts as a barrier to natural lateral movement of water from the backfill into the soil ball. The problem is worsened when multiple layers of burlap on the top of the soil ball result from folding to cover the round ball. These layers of burlap cause irrigation and rain water to run off the top of the soil ball leaving the soil below dry. Confirmation that the surrounding soil is moist does not necessarily mean that the soil ball containing all of the plant's roots is also moist.

Because burlap, whether it is jute, plastic or a mixture of the two, can lead to plant damage or other serious problems, all burlap should be removed from the sides and top of the soil ball. It is not sufficient to just slit these materials with the expectation that roots will ultimately find the opening. Leaving these materials on the root ball can result in confinement and girdling of roots, which in turn causes gradual decline and ultimately death to the weakened plant from diseases and insects. This decline and death may take several years; the real cause may often go undiagnosed.

The Backfill

The only thing that should go back into the planting hole around the soil ball is the same material (soil) that came out of the hole. If you find rock or building materials (brick, metal, wood, etc.) remove and dispose of them properly. Firm the backfill by watering it in; stomping on the soil will cause layers of compacted soil.

Do not amend the backfill with organic matter, compost, sand or any other additive. The poorer and more compacted your soil is, the more important it is to avoid adding amendments. The exception is with shrubs, where it is possible to amend the entire root zone in a bed. It may seem to make sense to amend poor soils, but research has shown that clay soils that drain poorly hold more water for a longer time when the backfill has been amended. The planting hole acts like a bucket, inhibiting the drainage of water from the loose, porous amended backfill into the unamended clay. The best solution is to dig wider planting holes.

If you are still in doubt that the tree will survive then it would be prudent to change to a species that is more tolerant of the site.

Post-planting Care

For the first year, the most important thing for your newly planted tree or shrub is water. Water is more important than 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.

Staking trees or wrapping trunks is usually unnecessary for B&B trees and shrubs. When plants are tightly staked, roots grow out of the soil ball more slowly. The trunk increases in caliper (diameter) more slowly, and the tree gets taller more rapidly. This process can result in trees that are more likely to blow over a year later when stakes are removed. Staking trees improperly results in damage to the trunks from rubbing. Open wounds are an excellent entry for life-threatening insects and diseases.

If a serious threat of blowing over appears to exist, stakes should be used. They should be checked frequently to insure that the trunk is not damaged and they should be removed as soon as the danger of blowing over has subsided. Trunks may begin increasing in diameter in February, long before the trees leaf out. Stakes and trunk wraps should be removed at the end of the first year after transplanting. Staking is rarely needed in the second year.