Planting Balled and Burlapped Trees and Shrubs

When considering the planting and maintenance of woody plants, many established cultural guidelines practiced by landscape professionals have undergone scrutiny in recent years. Based on research findings and field observations, many of these practices have been modified to improve overall plant health in a landscape setting. Research has shown that improper planting technique, particularly planting too deep, is a major cause of tree and shrub mortality in maintained landscapes. In addition, research has shown that accepted practices governing the size and shape of the planting hole and the nature of the backfill mixture require some modification.

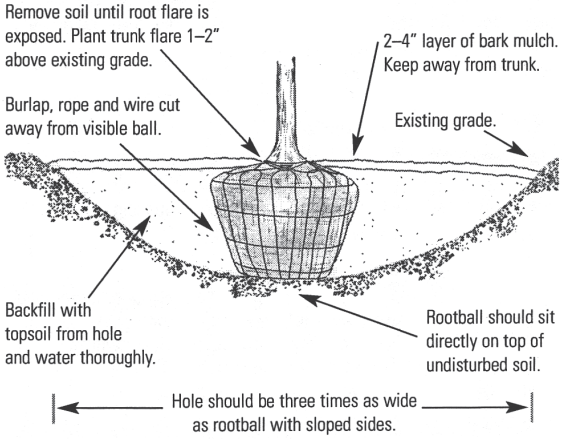
Site Evaluation: Before choosing and planting trees and shrubs, careful attention should be given to the site itself.

Each site should be evaluated for the following:

Slope	Amount of light	Hardiness Zone	Drainage
Soil Type	Space or size	Exposure	Soil pH

Plant Selection: After site evaluation, choose plant material that will adapt well to that particular location. Match the needs of the plant to the site. When choosing plant material, it is also important to consider growth habit and ultimate size, maintenance needs, pest resistance and function.

Site Preparation: Because the fibrous or absorbing roots of most woody ornamentals are within the top 10–12" of the soil, it is recommended that the planting hole be dug no deeper than the rootball as measured from the trunk flare to the bottom of the ball. Holes dug deeper than the rootball often result in settling of the plant to a point above the trunk flare. Because root development often extends beyond the canopy or dripline, it is now recommended that the planting area be loosened and aerated at least three times and, where possible, as much as five times the diameter of the rootball



Planting Hole Preparation: One of the most common errors in planting is that the rootball is planted either too deep or too high, both of which cause serious problems. To properly plant B&B plant material, start by locating the point at which the trunk flare begins. Measuring from this point to the bottom of the ball will give you the depth of the hole. Dig the hole one or two inches less than this measurement so that the trunk flare junction will be slightly higher than the existing grade level when the planting is complete. In some cases, the trunk flare junction may be buried in the top of the rootball soil and it will be necessary to loosen the burlap at the top of the ball to locate the junction. Try to keep the rootball intact until it is secure in the hole. If some of the soil falls away from the roots, simply proceed with the planting, taking care to ensure that the roots do not dry from sun or wind. The hole should be dug approximately three times the width of the ball with sloped sides as shown in the diagram.

Setting the Plant: Carefully set the plant in the hole so that the trunk flare is one or two inches above the existing grade. Once it is properly set, cut away all visible rope and burlap. If the rootball appears in danger of completely collapsing, only remove twine and burlap from one-third of the ball. Although still subject to debate, it is recommended that the top 8–16" of the wire basket be removed once the ball is stable in the planting hole. This can be done with a small set of bolt cutters, being careful not to leave any protruding points of wire which could cause injury. Do not try to remove the wire basket by pulling the rootball out because the ball will likely be destroyed in the process.

Backfilling the Plant Hole: According to current research, backfilling with soil dug from the planting hole is preferable to mixing the soil with large amounts of organic soil amendments such as peat moss, compost, etc. The addition of organic soil amendments may be necessary if the existing soil is of poor quality (i.e., excessively sandy, heavy clay or other undesirable material). Alternatively, quality topsoil, similar in texture to the existing soil, may be brought in and used for backfill. While backfilling, tamp the soil lightly to avoid leaving air pockets but not so firmly as to drive out all the fine air spaces needed for a well-aerated soil. An alternative procedure to avoid packing the soil too firmly is to water the soil halfway through the backfill process and allow it to drain. When the water has drained away, resume backfilling and water again thoroughly. To complete backfilling, smooth the surface soil with your hands or a rake and check to ensure that the trunk flare is completely exposed and that the top of the rootball is not covered with soil. It is advisable, especially where watering is difficult, to build a "saucer" at the outer edge of the hole to retain water and allow it to soak down to the roots.

Mulching: Mulching is a cultural practice that can benefit the landscape when done correctly. Mulching will reduce weeds, moderate soil temperatures, conserve soil moisture in the root zone, and add an aesthetic quality to the landscape. Improper mulching can impair plant health and lead to the decline of the plant material. Mulch should be placed in a wide band, approximately 3 times the diameter of the rootball, over the root zone and no more than 2–4" deep, tapering to, but not touching, the trunk. Mulch piled up against the trunk may cause rotting of the bark and can create entry points for insects or disease organisms. While there are many types of decorative mulches on the market, we recommend the use of untreated, shredded pine or hemlock mulch. Organic mulches, such as ground leaves, can also be used although they are not generally commercially available. Peat moss should never be used as mulch because it can form a mat that will prevent water from draining through to the root system. Under no circumstances should fresh mulch be mixed in with the soil.

Staking: While there are many opinions on the method and value of staking trees at planting time, most experts agree that staking is not necessary for all trees. Research has shown that staked trees may develop a smaller root system and decreased trunk taper. If the rootball is not stable in the soil, the trunk should be braced as low as possible to keep the root ball stable while allowing the trunk to sway slightly. In most cases, stakes should be removed after one growing season.

Watering: Water is critical to the successful establishment of plants. Excess or insufficient water impedes the formation and elongation of new roots. After planting, water the planting area deeply. Newly planted trees and shrubs must receive adequate water weekly during the first growing season to become established. In general, rainfall does not provide adequate moisture until after several growing seasons.

These Planting Guidelines have been developed by Deborah Swanson, Extension Specialist with the Landscape and Nursery Division of the University of Massachusetts Cooperative Extension Service.