



# PLANTING AND MAINTAINING TREES & SHRUBS

Research has shown that improper planting techniques, particularly planting "too deep" is a major cause of tree mortality in managed landscapes. In addition, research has shown the accepted practices governing the size and shape of the planting hole and the nature of the "backfill" mixture require some modification.

## **Site Preparation**

Because the fibrous or absorbing roots of most woody ornamentals are within the top 10" to 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. As root development often extends beyond the canopy or dripline, it is now recommended that the planting area be loosened and aerated at least three to five times the diameter of the rootball.

## **Planting Hole Preparation**

One of the most common errors in tree planting is that the rootballs are either planted too deep or too high, both of which can cause serious problems.

To properly plant balled and burlapped (B&B) plant material, begin by locating the point at which the trunk flare begins. In some cases, the trunk flare junction may be buried in the top of the rootball and it may be necessary to loosen the burlap at the top of the ball to properly locate the junction. Measuring from the trunk flare to the bottom of the ball will give the correct planting hole depth.

Try to maintain the integrity of the rootball until it is secure in the hole. In the event that some of the soil should fall away from the roots, simply proceed with the planting, taking care to ensure that the roots do not dry out from sun or wind. The hole size should be approximately three times the width of the ball and have sloped sides.

## **Setting the Plant**

Carefully set the plant in the hole so that the trunk flare is at, or 1 to 2" above, the existing grade. Once the plant is properly placed, cut away and remove all visible rope and burlap. If the rootball appears in danger of completely collapsing, remove the rope and burlap from only the top one-third of the ball. Although still subject to debate, it is recommended that at least the top 8-16" of the wire basket be removed once the root ball is stable in the planting hole. Do not leave any protruding points of wire which could cause injury.

## **Backfilling the Planting Hole**

According to 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 an organic soil amendment may be called for if the existing soil is of poor quality, ie. excessively sandy, heavy clay or undesirable fill material. Alternatively, quality topsoil, similar in texture to the existing soil, may be brought in and used for backfill.

While backfilling the hole, tamp the soil lightly to avoid leaving air pockets. However, do not pack the soil so firmly as to drive out all the fine air spaces needed for a well-aerated soil. As an alternative to tamping the soil, 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 the backfilling, smooth the surface soil and check to ensure that the trunk flare is completely exposed.

## **Watering**

Water is a critical factor to the successful establishment of landscape plants. Excess or insufficient water will impede the formation and/or elongation of new roots. After planting, water the planting area deeply. Newly

planted trees must receive adequate water weekly during the entire first growing season to become established. Rainfall alone may not provide adequate, consistent moisture necessary for establishment. On larger caliper trees, weekly watering may be necessary through the next several growing seasons.

### Fertilizing

Incorporate phosphorus, potassium and limestone according to a soil test report. Avoid placing water soluble nitrogen fertilizer directly in the planting hole to avoid injury to roots. If needed, a slow release or organic fertilizer could be mixed into the planting area or be applied on the soil surface around the tree basin.

### 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. Trunk strength, size of the canopy, wind direction and site traffic problems should all be considered before staking a tree. Research has shown that staked trees may develop a smaller root system and decreased trunk taper. If the rootball is stable in the soil, then it may not need to be staked. However, if the root ball is unstable and staking is required, try to attach stakes low on the trunk and allow some sway. In most instances, stakes should be removed after one growing season.

### Mulching

Mulching is a cultural practice that can be of benefit in 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.

Organic 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 to 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. Field mice may also inhabit deep mulch and feed on the bark.

### Pruning

After transplanting, prune only broken or damaged branches. Top pruning to compensate for root loss is no longer recommended. It is important to leave as much foliage on the tree as possible because carbohydrates and other products produced by photosynthesis in the leaves are necessary for root system regeneration and development.

