

Horticulture Diagnostic Laboratory



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How to Plant Trees and Shrubs

When you purchase a tree or shrub from a nursery or garden center it will usually be either balled and burlapped (B&B) or in a container (most often constructed of plastic). Occasionally you may purchase a tree which has been bare rooted (a tree which has had all of the soil removed from its root system). B&B trees and shrubs are those which contain a rather large ball of soil around the roots which is wrapped in burlap and secured with string or twine. Some B&B plants may have a wire basket around the burlap instead of twine. B&B plants are usually planted during the spring and late summer - early fall. Container-grown plants are those which have their roots growing in a modified soil medium (mixture) contained in some type of suitable container (i.e. plastic, wood, etc.). Container-grown plants can be planted in the spring and fall as well as the summer with some special care. Bare rooted plants should be dug and planted when they are dormant in early spring or late fall.

Digging the hole. The new thinking on planting trees and shrubs is to not over prepare those soils which are in good condition by adding various amendments (i.e. peat moss). Taking this into consideration your first step should be to evaluate the soil condition of the site (i.e. soil pH, soil texture, etc.) and determine what if any amendments should be added. If soil conditions are good then no amendments will be added.

First, dig a hole at least 3 times wider than the diameter of the existing root mass. If soil is poor then try to dig a hole even wider than this. (In some cases it may be advisable to turn the soil under in a large "planting bed" by rototilling). The hole should not be dug too deep though. You prefer to have the plant sitting on firm, but well-drained soil. Thoroughly loosen this soil which you have dug.

If poor drainage exists you will need to consider installing drainage devices (i.e. plastic drain pipe, gravel filled holes, etc.) to move excess water from within the plants root zone. Another possibility is constructing raised beds. If the soil is too sandy then replace up to 1/3 of the back-fill with a suitable organic amendment (i.e. peat moss, compost, manure, etc.). If the soil is not porous enough consider adding sand to improve it, but be careful since too much sand added to clay-like soil can create more problems than it solves. Do not add moisture holding amendments such as peat moss to soils that are poorly drained. Add soil pH adjusting amendments as recommended based upon soil test results. Remember if the soil is okay - no amendments are necessary. Be sure any amendments are thoroughly mixed together with the back fill soil or rototilled into the entire planting bed.

Planting the tree or shrub. Move the tree or shrub to the hole you have dug. Carry B&B plants by the root ball -- never by the trunk. Do not plant too deep. It is very important that the root flare (the area where the major roots and trunk of the plant meet) be at or slightly above the existing soil line. Usually this is the top surface of the root ball or soil medium (with a container-grown plant). Unfortunately some plants are planted too deep in the nursery or container or have had soil piled up next to the trunk during cultivation in the nursery. In these cases the root flare is often not very obvious. Where this is the case you will need to carefully remove the top surface of the soil or medium until the root flare is exposed.

Container-grown plants have additional pre-planting requirements. Loosening or cutting of the roots is necessary to stimulate root growth to occur from the cut ends and into the surrounding soil. If this is not done the plant has no immediate incentive to send roots into the surrounding soil. These roots will often grow in a circling or girdling fashion and the plant eventually dies. For more detailed information on planting container-

grown plants contact our office for information on ordering a copy of [Planting and After-Care of Container-Grown Plants.](#)

Measure the height of the root ball (the distance from the root flare to the bottom of the root ball). This distance is how deep the hole should be dug. The soil at the bottom of the hole should be firm so the plant will not settle. Set the plant into the hole and make any final depth adjustments by removing or adding a small amount of soil beneath the root ball. When planting a bare-root tree set the tree on top of a "inverted cone" fashioned out of soil. The trees roots are then spread and directed towards the sides of the hole. Try to keep the roots positioned at the same depth that they were growing at in their original location.

Untie and remove all twine and burlap at this time. Twine and burlap, which **are not treated** to resist rotting, can be stuffed into the bottom of the hole where they will decompose. Non-biodegradable twines and burlap need to be entirely removed. Wire baskets should be completely removed or at least the upper 2/3 of the basket should be cut-away and removed.

Fill the hole around the plant with the loosened back-fill soil. Be sure to pack soil under and around the root ball or bare roots so that no air pockets exist. With any excess soil create a **temporary** circular berm or dam to form a water basin. Locate the berm beyond the root ball of the plant so water that collects will go directly into the root ball as well as into the nearby surrounding soil. It is important to keep the root ball adequately moist as well as the surrounding soil where new roots will need to grow. Watering on a regular basis to accomplish this is recommended. Remove the circular berm **within a few months after planting.**

Staking a newly planted tree is usually not necessary. If the site is very windy or the tree has started to lean supporting the tree with flexible staking that allows the trunk to sway in the wind is recommended. Trees, which are allowed to sway in the wind, will develop a better taper and a stronger root system. If it is found to be necessary the bracing should be positioned as low as possible on the trunk which will allow swaying. Double bracing with a support on each side of the tree is suggested. If wire is used it must pass through a piece of rubber hose where it goes around the tree trunk. Be sure the tree can move at least one inch in either direction. **All staking materials should be removed within one year.** Staking materials, which are allowed to remain around the trunk, will eventually girdle the trunk and cause the tree to die.

Wrapping the trunk of newly planted trees is **not** recommended. It is best to remove any trunk wrappings after the tree is planted. The wrapping is often held in place with thin thread at the top and bottom. Be sure to check and remove any such material which could girdle the trunk.

Finally cover the top surface of the soil with a layer of organic mulch (i.e. bark nuggets or chips). Do not pile the mulch against the bark of the trunk. Keep a few inch area around the trunk free of mulch. Two or three inches (depending on particle size) should be sufficient. The mulch will help to retain soil moisture and lessen the incidence of the root ball drying out.

Reference: "Planning for Healthy Trees", *American Horticulturist News Edition*, Vol. 67 No. 9, 9/88.

11/94; slight revision 7/98; Prepared by: Thomas Kowalsick, Extension Educator, Cornell Cooperative Extension - Suffolk County

TK: 10/2008 AW:2/2012 AR: 2/2015