



Commercial Landscape Series: Installation Issues on Woody Ornamentals

Many cultural and pest problems on woody ornamentals can be avoided by selection of high quality plant material. Select plants that are properly adapted to site conditions and fully adapted to extremes of temperature that can be expected. Proper placement in the landscape with adequate room for growth and development will keep plants healthy after they are established. Plants that are weak or damaged when planted may never overcome initial problems and will fail to thrive. Always choose top quality plant material that is suited for the location.



High quality plant material.

Inspect the roots, trunk or stem, and structure of the plant before you purchase it. If the plant is growing in a container, pull it out and inspect the roots. They should be white or light tan, succulent, and should not circle more than halfway around the container. Plants with circling roots may develop girdling roots. If you find a circling root, try to spread it out or prune it to the point where the root can be straightened out. Special care is needed when plants are overgrown or held too long in containers because of potential root problems. Most problems with pot-bound plants can be avoided by loosening the roots prior to planting. Roots that are dark brown or black may have been damaged, dried out, rotted, or may not have the ability to generate sufficient new roots when planted, and should be removed or the plant should be discarded.



Plants are kept moist and mulched to protect the roots from drying out.

Avoid trees and shrubs with cankers, injuries, or cracks in the trunk. When inspecting the trunk, be sure the natural trunk flare is visible at soil level. No flare indicates the tree is set too deeply in the root ball. Trees grown in a nursery can have their trunk flares buried during mechanical cultivation or at the time of digging. Trees or shrubs that have been planted too deep may never recover. Also avoid plants with root systems too small for the size of the tree, especially trees that have never been root pruned or trees hastily dug from old farm fields. Balled and burlapped plants should not have a loose root ball; fine feeder roots that develop after proper root pruning will hold the soil in the root ball together. When handling plant material, pick the plant up by the root ball, not the trunk. Handling the plant by the trunk can result in bark injury or may cause soil to be lost from the root ball. Some trunk damage may never heal and lead to cankers or borer problems.



Protective wrap around trunk prevents damage.

Select plants that are free of pests, especially scale insects, and root diseases. When possible, choose varieties that are resistant to common insect and disease problems. On conifers, look for normal size needles with good color, and check to ensure that



Multiple trees in planting hole.

what you are planting is a single plant with a single dominant leader. Nurseries often plant several plants together in a pot to make the foliage look thicker. All but one should be removed at planting time if you cannot locate conifers that are grown as single plants. On deciduous plants, check that the annual growth rate is consistent with what is normal. Choosing top quality plant material ensures your plant will have the best possible chance to thrive in your landscape.

Site Selection and Preparation:

Prepare the site by loosening the soil some around the planting hole can expedite root expansion. Do not dig deeper than the root ball or the plant might sink into the ground too deeply as the soil and plant settle. The sides of the planting hole should slope outwards when planting in heavy soil.



Soil compaction from heavy equipment.



Loosen soil and remove debris before planting.

Many commercial sites have poor soil and based on a soil test, new plantings can benefit from an application of a slow release fertilizer. Compacted soil will benefit from incorporating organic matter into the entire planting area. Do not add soil amendments such as compost or peat moss directly into the planting hole. If amending the soil is not an option, then at least



Use high quality compost to amend poor soil.



Planting site with incorporated compost.



Check site drainage.



Standing water in planting hole indicates poor drainage.

loosen the soil that may have become compacted due to heavy equipment on the site.

It is ideal to remove all root containment materials from the tree or shrub before planting. These include burlap, cords, root containment bags, wire baskets, etc. However, for large trees



Remove ties, burlap, and wire basket below soil line.



Completely remove root containment bag.



Burlap not removed below soil line.

that may weigh hundreds of pounds removing all of the burlap and wire baskets may not be practical. In these situations cut away some of the burlap and wire basket around the top of the root ball to at least 12 inches below the soil line.

To remove container grown plants from the container, tap gently, set the plant on its side and pull the pot away from the plant. Separate the roots by slicing into the root ball in several places. Gently pull the roots apart, spreading them out. This will prevent girdling roots and encourage new lateral root growth.

Always determine the true top of the root ball. This is indicated by the presence of the flare between the trunk and the roots in the case of trees, or the crown where the branches meet the root system in the case of shrubs. Excavate any soil above this level before you plant. Place the plant in the hole at the proper level. In heavy clay soils, plant shrubs with the top of the root ball higher than the existing soil line. You may need to leave eight to ten percent of the root ball above the soil line to ensure that the root ball will have the oxygen needed to sustain the roots. It is important when planting to avoid covering the top of the root ball with more than 1/2 inch of soil. Otherwise, water may be diverted sideways through the native soil and not soak down



Remove excess soil and properly grade planting area.



Soil and mulch washed out due to improper grading.



Proper depth of mulch near tree base.



Heavy equipment can damage root balls after installation.



Improper soil removal, over mulching, and poor grading.

into the root ball, where it is needed. Keep all soil and mulch away from the stem of the plant. The excess soil that is removed from the planting hole should be graded into the surrounding area or removed from the site.

Once a tree or shrub has been planted, shape the soil around the stem to create a shallow depression the diameter of the root ball. Fill the depression with water. This permits water to go straight to the root zone rather than run off the surface. Thorough soaking after planting eliminates air pockets around roots. Newly planted trees and shrubs should be watered when the soil below the mulch and in the root ball feels dry. An effective way to maximize growth of trees and shrubs is with a large mulched area. This will reduce competition for nutrients and moisture between young plants and grass. If planted individually, mulch new trees and shrubs out to the drip line. The mulch layer should not exceed 2 to 3 inches in thickness. Keep all mulch away from the stem of the plant.

Care After Planting:

In most situations there is no need to stake a newly planted tree. Research has shown that the natural movement of the trunk by

the wind actually stimulates root growth and increases trunk size more quickly near the crown than trees held firm by staking. If the tree does not seem sturdy after planting, or if the site is very windy, staking may be needed for the first season. Allow enough slack in the supporting wires for some trunk movement. Use pieces of flexible tubing over the wire to prevent bark damage. Stakes can serve as protective devices to keep traffic,



Typical wood staking.



Cable ties are a better stabilization method.



Tubing around wire to prevent damage.



Water tank to irrigate plant material or fill gator bags.



Flexible ties to prevent trunk damage.



Stakes and ties not removed after establishment.



Gator bag that was not maintained.



If plant material is not watered properly, stress cankers will develop on trunk.

lawn mowers, and string trimmers away from the root zone under the tree. Be sure to remove all stakes and wires after the tree is established.

It is not necessary to prune an ornamental tree before, or after planting unless broken or damaged branches need to be removed. It is also not necessary to balance top growth with roots. Proper planting techniques can help plants to establish quickly and may help plants to better withstand environmental stresses.

Keep newly planted trees watered. **Research has shown that the most important step after planting is regular watering during the first two years for proper establishment.** If using water bags, do not allow all the water to be lost before refilling them.

Irrigation needs to be directed to the base of the plant to insure the root ball receives adequate water. The best planting times are spring and fall when air temperatures are cooler and evaporation rates are slower.



If soil dries out root establishment does not occur.

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