

Planting trees is time-consuming work when properly done, and can also be costly if the trees die while under guarantee. Enhancing tree survival is a priority, so the actual planting method, as well as how the plant is handled, is important to do properly.

Retaining roots and promoting root growth is essential in establishing a tree. Root loss is a stressful situation for any plant and it is compounded by poor handling practices.

▶ A bare-root tree does not have many of the nonwoody or absorbing roots needed in good number to help establish the plant. The root hairs and associated mycorrhiza fungi access water and soil elements. Bare-root plants are susceptible to their roots drying out and dying due to improper handling.

▶ A balled-and-burlapped tree also loses many roots when dug up from nursery soil, which can put the plant at a disadvantage in a landscape where post-planting care is limited. Rough handling tears and breaks roots. Excessive drying of

the soil ball results in dead and dying roots. Lifting and dropping the tree for positioning in the planting hole, or using the stem to leverage a tree, can break and damage more roots.

▶ A container tree has an advantage in that the entire root system is transplanted. One concern, however, is the likelihood that circling roots growing in the container will cause long-term problems.

Always check the condition of the roots of any tree you buy or plant. Keep the roots of bare-rooted plants moist and covered. Ensure B&B root ball burlap is at least damp, all roots are covered with soil and the root ball doesn't have large cracks. Container plants should be free from potential girdling roots, so check the outside and the top of the root ball. Look for evidence that transplanting

to larger size pots was delayed and a series of circling roots exists.

Another transplanting option is trees grown in fabric containers. Root control bags are placed in the ground so that tree roots will grow in native soil, which is usually heavier and more likely to be compatible with the customer's site than potted material. The bags act like a container in that root growth is restricted to within the bag. The bags are made of a heavy cloth-like material which does not degrade and must be removed at transplanting.

Unlike a container, the roots do not merely circle the container but grow through the fabric where their growth is constricted. This method has two results: one, the initiation of more fine roots inside the fabric container; and two, energy is stored at the swollen nodes, where constriction occurs, ready to initiate new roots upon transplanting.

This type of root pruning is quite effective, both for controlling root extension and for limiting the impact and loss of roots when the tree is removed from the nursery. At transplant, about 95% of the tree's roots go into the ground with the tree, as opposed to low percentages of B&B stock. For species difficult to transplant, root control bags may be a reasonable choice to increase survival rates.

There is debate over whether the use of root control bags results in more and faster top growth. This seems to vary among species and there may be a need for higher, short-term irrigation for some species.

The type of planting stock you choose should take into account how you will be handling it, what level of post-planting care can be expected and the handling and care of the trees at the nursery. Select your nursery and planting stock supplier with care, not just based on price or convenience, but also on quality and commitment. **LM**

What do you know about your roots?



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