

Root Management Cue Card

Consistent root management in the nursery promotes structurally stable and healthy trees in the landscape. Improperly managed root balls can form permanent defects, such as circles and bends on the periphery. Follow these guidelines for managing roots to reduce defects on young trees.

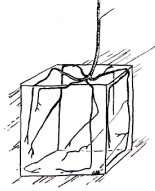


Figure 1A. Roots growing on the periphery of the liner.

The root ball should be inspected at each shift to a larger container starting with the liner (the young tree in its original container, Fig. 1A). Root pruning on the periphery and bottom of liner root ball removes most defects (Fig. 1B).

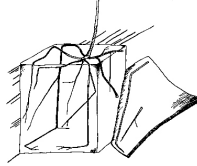


Figure 1B. Pruning the liner to remove roots growing on the periphery.

Cut a root back to the point just behind the bend (Fig. 2A) to remove the bend. Cutting the root at a point after the bend (Fig. 2B) is less effective because the bend remains. Roots that grow down and around the sides of the liner root ball become woody as they enlarge in diameter (Fig. 3, right). These woody roots retain their original deflected orientation, which can cause health and stability problems for the tree.

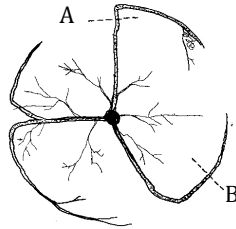


Figure 2. Cut roots at (A) to form new roots that grow away from the trunk (see Fig. 5). Do not cut roots at (B), since the defects can regrow.

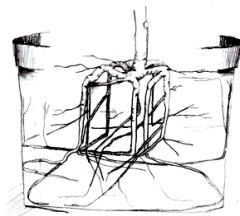
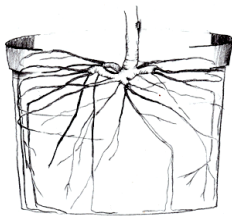


Figure 3. A quality root system develops if the roots of liners (see Fig. 1) are properly pruned when the tree is shifted to a larger container (left). A poor root system develops when deformed roots are not pruned during shifting (right).

Pruning a tree's roots when shifting it to a larger container or before planting it in the landscape improves the root system because it cuts roots back to straight, radial root segments attached to the trunk (Fig. 4). A pruned root ball will be smaller than it was before pruning. Certain types of containers reduce root growth on the periphery of the root ball, so less root pruning may be needed. In some instances, root defects develop further inside the root ball. In these cases, prune root balls deep enough to remove defects.

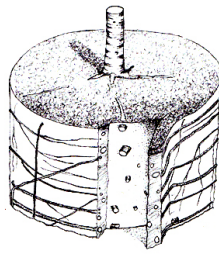


Figure 4. Pruning the roots of a 3-gallon or larger root ball.

In the weeks and months following root pruning, new roots grow away from the cut ends in a fanlike manner (Fig. 5). These new roots provide greater stability for the tree.

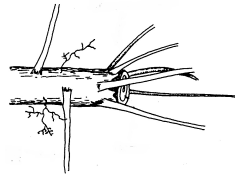


Figure 5. Roots growing from a cut root.

Whether root defects can be corrected depends on their location in the root ball, severity, tree species, water management, size of roots, and time of year. It is easier to cut defective roots when a tree is younger than when it is older (Fig. 6). Ideally, roots should be inspected and defective roots pruned at each shift to a larger container, reducing the need to heavily prune larger roots.

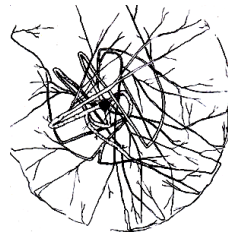


Figure 6. The liner, 5-gallon, and 15-gallon containers left an imprint on this root system. These root defects would be difficult to correct at this stage.

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