

allow and encourage roots to spread out and grow into native soil. In limited rooting areas, slanted hole sides can help prevent the tree from becoming pot-bound in the hole.

Hole size—The diameter of the planting hole should be at least three times the diameter of the root ball. The hole must be large enough to allow for proper root growth and distribution. Do not bend or pack roots into too small a hole.

Tree placement—Do not put water into the hole before the tree is planted. You should water the root ball heavily after planting.

Remove the tree from all bindings, ties, wires, burlap or wrapping. For larger trees, it is important that you remove all ties and as much of the packaging material as possible.

Do not leave trees in wire baskets or surrounded by any other kind of material or fabric. Any materials left around the tree will disrupt root growth and affect long-term root distribution.

Tree wrap can be used to protect the tree during the planting process. But it should be removed immediately after the planting site is finished.

Tree planting—Tree roots should not be exposed to full sunlight and air for more than a few seconds. Immediately upon opening the container or wrapping, use your fingers to gently pull the outer roots away from the rootball.

Gently break up and disrupt the nursery soil around the roots. Place the tree in the hole and carefully backfill with the native soil. Do not add any type of soil amendment or fertilizer to the native soil fill or the hole.

Try to keep the roots in roughly their original orientation. Do not sharply bend, abrade or twist them. Pull apart or cut roots that are closely surrounding or girdling the stem base. Plant trees with their roots spread horizontally, not downward.

Snugly pack the soil around the roots. Eliminate large air pockets but do not tamp or compact the soil. Roots must have close contact with the soil in order to properly function.

After the tree is planted, extensively water the entire planting site to help settle the soil and minimize large air pockets. Extensive watering helps establish connections between the tree and the soil-water system.

—The author is in the Extension Forest Resources Department at the University of Georgia.

Calculating rooting area

Step 1: Use the following chart to estimate what the size of the trunk at 4-1/2 feet above the ground (diameter at breast height, DBH) will be, at the age shown for the expected stress level.

<u>Site stress levels</u>	<u>Est. dia. of tree at age:</u>	<u>Example areas</u>
extreme stress	7 yrs.	downtown, parking lots
moderate stress	15 yrs.	residential streets, intensive use parks
low stress	25 yrs.	yard trees

Step 2: Expected DBH (in inches) x 2.0 = side dimension of a square planting space (in feet) or
Expected DBH (in inches) x 2.25 = diameter of a circular planting space (in feet).

Example: A 3-1/2-inch DBH tree in a parking lot would be growing in a very stressful site. Expected diameter (DBH) in seven years is five inches. The amount of rooting space you should provide at planting time for this tree would be a 10 x 10 foot square area (5" DBH x 2.0 = 10 feet) or a 11.25-foot diameter circular area (5" DBH x 2.25 = 11.25).

Mulch for trees: wide but not deep

■ To get a newly planted tree off to a strong start, put a 3- to 5-inch layer of mulch around its base, says Mark Timmons, a horticultural consultant.

Timmons says work done by Dr. Gary Watson at the Morton Arboretum near Chicago shows that mulched trees develop significantly faster than non-mulched trees under the same conditions. Timmons says the mulch moderates soil temperatures and moisture for the tree roots.

Be careful not to apply the mulch too deeply, but don't worry about making too large a circle of mulch around the tree base.

"The guys that thought up the word dripline didn't do us a favor," says Timmons, explaining that many turf managers make the mistake of thinking almost all of a tree's root system lies within the imaginary circle beneath the tree extending straight down from the circumference of the tree's foliage.

He says that many tree

roots radiate out much further than that, sometimes 2 or 2 1/2 times the height of the tree.

"The root system of a tree is almost always more extensive than the tree canopy," says Timmons.

Another common misconception concerns tree taproots, says Timmons of Mark Timmons & Associates, Louisville. "Most trees as they mature lose what rudimentary tap root that had when they were young," he says.

This is particularly true when a tree is growing in heavy clay soil. There isn't much oxygen in these soil, and what little there is is within the top 18 inches of soil.

Timmons, who consults with turf/landscape managers and golf course superintendents in the Midwest, made these comments at the 1992 Golf Course Superintendents Association of American Convention this past February.



Mark Timmons says tree root systems can be amazingly extensive.