

How to Properly Plant a Tree – Part 2

Shave the Root Ball

Once you have identified the tree's root flare, see How to Properly Plant a Tree – Part 1, there are a couple of steps you need to take before planting the tree.



Image 1. Determine the depth of the planting hole by measuring the distance between the root flare and the bottom of the root ball.

The first is to determine the depth and width of your planting hole and the second is to address any circling roots in the root ball.

To determine the depth of the planting hole, you can either remove the container or leave it in place. Either way, you need to measure from the bottom of the root ball to the root flare. Use a stick, a measuring tape, or the handle of your shovel to determine the depth.

The tree's root flare should sit slightly above ground level by 1-2 inches. Disturbed soil tends to settle as it is watered and if a tree was planted at ground level, it may sink below grade as the soil settles. By planting above grade, it ensures the root flare stays above ground level.

Therefore, for proper planting hole depth, take the measurement of the root ball and subtract 1-2 inches to ensure your tree sits slightly above ground level.

The width of the planting hole should be 2-3 times the width of the root ball. New roots can grow into disturbed and loosened soil much easier than growing into undisturbed and compacted soil. By loosening the soil around the hole, the tree is able to become established much more quickly.



Image 2. Remove the tree from the container.

Remove the tree from its container.



Image 3. This is an example of a girdling root. It needs to be removed before planting.

After the container is removed, you will be able to see if there are any large roots you need to remove before planting.

Larger roots, like those seen in Image 3, should be removed using a sharp pair of pruners. The cut should be made at the point before the root turns and begins circling the root ball. By making the cut here, so cut portion of the root is facing outward, when the new roots begin to grow they will grow into the soil and not continue to grow in a circular pattern.

Do not slice through the root at any point after it has begun circle the root ball. Any new roots that will emerge from that slice will continue to grow in the same circling pattern and around the planting hole. It is important to make the cut so the new roots will be facing out and will grow into the soil.



Image 4. Before planting the tree, the outside of the root ball must be shaved off to prevent circling roots.

The old recommendation to address girdling roots was to take something sharp and slice through the roots. Unfortunately, research proved that was ineffective. It did not change the direction of the new roots and they continue to circle the root ball and the planting hole.

The new recommendation is to **shave off about 1 inch** of the outer periphery of the root system and to physically *remove* the circling roots. This will encourage the tree to develop new roots growing out into the soil.

Make sure to use a shape blade to make these cuts. Most arborists have a dedicated saw when working with soil and shaving root balls.

When making these cuts, to reduce the amount of cleanup, place the tree in the planting hole. The edges of the root ball that are cut off can be used as backfill when planting the tree.



Image 5. Remove approximately 1 inch of soil from the outside of the root ball.

By removing the outer inch of soil, your root ball may be more square-like than circular.

Do not tear the larger roots or make jagged cuts. If you come across larger diameter roots, use sharp pruners to make the cut. The cut should be before it starts to circle so the fresh roots that grow from the cut grow out into the soil.

Many tree failures we see now are now a result of girdling roots that were not addressed at the time of planting. These roots can act like a boa constrictor on the trunk, cutting off water and nutrient transport. Plus, circling roots (the existing ones) will not grow laterally into the site soil.



Image 6. Once the root ball has been shaved, ensure the root flare is placed at or slightly above the soil grade.

Now that you have shaved the root ball and addressed any girdling roots, the tree is ready to plant.

Check the tree from several angles and make sure it's straight. The root ball should be sitting slightly above grade (1-2 inches). Then you can add your backfill (the soil). The rule of thumb is no more than 5% organic matter mixed in with the backfill.

If you add a "rich compost" to the backfill, the tree roots will not want to grow into the native soil as it will not be as desirable. Too much organic matter can be detrimental since it can hold too much water and decomposes more rapidly.

When you're backfilling, do not put any soil on top of the root ball. You've gone through a lot of work to identify the root flare and plant the tree at the correct depth. Adding soil over the root ball now is undoing all the work you just did.

After adding the backfill, water gently to allow the soil to settle. Then add more backfill, water and repeat as necessary. You may have to do this several times to get the tree to final grade.



Image 7. Do not place any mulch over the root ball. Keep grass away from the trunk to prevent damage from lawn maintenance equipment.

Finally, add organic mulch. It helps keep weeds down, stabilizes soil moisture, and also adds organic matter back into the soil as it breaks down.

Just like the backfill, keep all mulch off the top of the root ball. The mulch should come up to the edges of the root ball, no more than 3-4 inches deep, but not cover the top. Mulch on the top of the root ball will not decrease the tree's moisture requirements, but it can increase the potential for circling roots and allows moisture to sit against the trunk.

Grass should be kept away from the trunk. This prevents damage from lawn maintenance equipment.

When you're finished, you should clearly see the root ball, which makes it easy to water, since you can focus your efforts for the first season on just watering the root ball.

After a season or two, start watering the planting hole and beyond since the roots will be growing outward from the trunk.

The rule of thumb for newly planted trees is to apply 1-2 gallons of water per inch trunk diameter as needed (don't let things dry out), approximately 3-4 days/week, depending on the temperature and wind.



Image 8. Putting stakes on a tree for support is not always required. If you do use them, take them off after one growing season.

Staking can damage the tree if done improperly or left on for too long.

There are really only three reasons to stake following planting: windy sites, near people activities, or for a tree that cannot support its own weight. For the most part, a tree in a homeowner's yard should not need to be staked. Stakes should be left in place for only one growing season (1-year).

If you decide to stake the tree follow some simple guidelines:

- Use fabric straps around the trunk to prevent damage
- Do not make the wires between the trunk and the stakes too tight
 - o The tree needs to be able to move in the wind.
 - o This will encourage the tree to grow strong roots and a strong trunk.
- Remove all stakes and straps after one growing season.