# Planting a Tree

## A Toronto Master Gardeners Guide

*"The true meaning of life is to plant trees under whose shade you do not expect to sit."* Nelson Henderson

The key to growing a healthy tree begins with proper planting procedures. This gardening guide outlines each step in successful tree planting.

Correct planting of any tree is one of the keys to good tree health and long life.

## Choosing a Tree

It's spring and you want to plant a tree. First, choose the site where you want to plant the tree and assess the available space, light, soil, water and wind conditions. Now you must choose a hardy tree best suited to that site. Choosing the right tree, for the right spot, is perhaps the most important factor that will determine whether or not the tree will survive and thrive.

There are many trees hardy to the chosen site, so consider other factors to help narrow the choice.

The first factor is what function the tree will perform in your landscape. For example, do you want the tree to provide cool shade on a hot day, to meet a particular aesthetic purpose, function as a specimen tree or become a wind screen?

Consider how tall and wide the tree will become and its growing habit. Will it be appropriate for the particular location (e.g. for example, in front of a window, beside a driveway, walkway, or beside the front door)? Is it suitable for the intended purpose (e.g. will grow fast enough to provide the privacy and windbreak you desire)?

Decide if you prefer a deciduous or coniferous tree. Deciduous trees may have flowers, seed pods or fruit that drop on the ground and attract hornets and other insects. They generally require more maintenance. Some have notoriously greedy roots, so much so, that almost nothing will grow underneath them. Some need more pruning than others, and most will need their fallen leaves raked up each autumn. A deciduous tree provides shade in the summer, yet will allow light through your window during the dreary winter.

Coniferous trees, on the other hand, provide year round interest as well as year round protection for birds and small animals. Usually, they require little pruning or maintenance, such as raking, but like some ornamental deciduous trees, you may need to provide protection against harsh winter conditions. Soil around conifers may need particular consideration when planting nearby due to acidic conditions caused by repeated needle drop.

Finally, consider aesthetics and what appeals to you? Deciduous trees can be chosen for many reasons. Each species offers particular structure or form, specific leaf form, texture and colour, as well as, unique bark. Some offer flowers that offer not only beauty and fragrance, but may attract birds as well. Some trees offer different aesthetic elements each season, with colourful blossoms in the spring, variegated foliage in the summer, brilliant autumn colour and interesting bark in the winter. Some provide unique architectural

form or structure to your landscape. Unlike deciduous trees, conifers offer year round interest through great variation of height, width, form, colour and texture, as well as interesting seeds. Conifers, as evergreens, also do not change as much from season to season.

The possibilities are endless. If you would like advice on choosing a tree, ask a Master Gardener, an arbourist, or consult the City of Toronto Urban Forestry Service.

Having chosen the perfect tree, it is recommended that you go to a reputable nursery to find a healthy tree. Spring is the best time to visit a nursery for greatest variety and availability, as well as healthy new plants. Consider the following factors in choosing a healthy plant:

A healthy plant will have new growth on most branches of the tree, but not 'leggy' new growth. Long thin 'leggy' growth indicates that the tree has lacked something in its development, usually proper light conditions.

Make sure that the soil has not been pulled away from the sides of the container, and check to see if there are roots growing out of the bottom drainage holes. This indicates a pot bound, tangled mess of roots that will have to be pulled apart, or cut off before planting.

Check for dead branches and any signs of damage, disease, or pest infestation on the bark and leaves of the tree.

Choose a tree with a pleasing shape and one strong trunk. Make sure that no main branches are crossing since these should be pruned out. Branches that cross will rub together in the wind. Over time this can lead to bark damage and possible disease and pest infestation.

Finally, consider the age of the tree. Younger trees adapt faster to their new environment than older trees. It is said that each inch in trunk diameter represents a year of recovery for the tree. So, if your tree trunk is seven inches, it will be seven years before your tree resumes normal growth.

## When to plant

Spring is the best time to plant a tree. Deciduous trees should be planted as early in the spring as possible. Coniferous trees prefer planting from mid to late spring when the soil has warmed up a little.

The cooler days of autumn are the second best planting time. However, most trees in a container can be planted anytime during the growing season, if kept well watered.

Your new tree will be sold in a container, wrapped in burlap, or bare-root. Trees in containers, and those wrapped in burlap, can be kept watered and in a shady place until you are ready to plant them. A bare-root tree must be planted immediately. If you must wait a few days, plant it temporarily in a pot or 'heel in your tree'. Dig a shallow hole in a shady location, lay the tree on its side, throw some soil over the roots, and cover with wet burlap.

It is kindest to plant your tree on the morning of an overcast day. This reduces the stress the tree faces from having to cope with the effects of the burning, drying sun.

## Preparing the hole

It is important to prepare the hole before removing the tree from its container. Removing the tree and planting directly into the hole will minimize the exposure of the roots to the drying effects of the air.

The size of the hole should be at least twice as wide as the current container – wider is even better. The purpose is to loosen as much surrounding soil as possible so that the roots can easily grow while absorbing plenty of water, nutrients and air.

The hole should be as deep as the container. You can measure the depth by placing the container into your hole. Don't dig much deeper than the container. Anytime the soil is loosened, it eventually resettles. If you have dug a hole that is too deep, the tree will sink when the ground resettles. This can lead to disease because the trunk, unlike the roots, is not meant to be buried in soil.

## Soil amendment

You should not add new bags of soil or soil amendments when planting a tree. Ideally, you have well-drained, organically rich soil or soil perfectly suited to your chosen tree that will enable the new tree to set down roots and thrive. More realistically, you have wisely chosen a tree that will tolerate and thrive in your soil conditions. It may seem nurturing to add new top soil, manure, compost or peat moss to enhance the soil, but in fact, you are creating a soil pocket which is unlike the surrounding soil. The roots may initially grow well, but, as they come to the edge of the soil in the planting pocket, they will resist growing beyond into the surrounding soil. The tree will be stronger and grow faster if its roots are able to adapt quickly to the given soil conditions and begin to grow out and down into the earth beyond the prepared hole.

If you would like to improve the soil, do so gradually by using organic amendments, such as a layer of disease free leaves, in the form of a mulch. Spread mulch around the surface of the soil after the tree is planted, so it will slowly and naturally decompose and work its way into the soil.

## Preparing the tree for planting

If the tree is bare-root, it is ready to plant. If the tree is wrapped in burlap, untie and unwrap the root ball. If the tree is in a container, gently tilt the pot sideways, and remove the tree. Loosen the pot and pull the pot off the root ball. Avoid using the tree to pull the plant out of the pot. If you are having a hard time getting the pot off, cut it off.

Have some wet burlap close by to drape over the roots of the tree as you take the time to properly place the tree in the hole.

## Determining planting depth

The importance of planting a tree at the correct depth cannot be overemphasized. Planting too deeply will eventually lead to the death of the tree. The place where the roots meet the trunk is called the trunk flare or the root collar. Unlike roots, trunks are not meant to be buried in soil. If covered in soil the trunk may rot, become diseased or even die. The tree must be placed in the ground so that the soil grade is level with the bottom of the root collar.

When planted at the proper level you will see the gentle flare of the trunk rise just above the soil line. Err on the side of placing the tree higher above the soil, especially if you suspect the soil will settle and the tree will sink. It is easier to add soil after planting, than to replant a tree with a sunken trunk flare.

If the tree is bare-root, it is easy to see the root collar. If the tree is in a container, or wrapped in burlap, make sure you can see the root collar. Often the nursery will cover the root collar with extra soil or mulch to retain moisture in the container. You must remove this soil/mulch until you uncover the root collar.

An easy way to see if the tree is placed at the proper depth is to lay the handle of a shovel, or any straight edged stick, across the hole. Kneel down to make sure the bottom of the root collar is level with the bottom of the shovel handle, or stick.

For bare-rooted trees where the roots are not contained in a ball of soil, it is advisable to put a mound of earth in the centre of the hole. Place the root collar on top of the mound and let the roots fan out and droop over the sides. Putting the mound of soil in first saves you from the awkwardness of having to fill in under the roots later.

Gently pour a large bucket of water in the hole, over the tree roots to reduce large air pockets and settle the soil. Make any necessary depth adjustments.

## Checking and repositioning roots

Healthy roots grow away and down from the trunk of the tree. Placing bare-root trees on a mound of soil will help the roots to fan out and grow away from the trunk, as opposed to straight down all together in a tangled mess.

If the tree has been long wrapped in burlap, the very tips of the roots may have grown to the edge of the wrapping, been exposed to air and heat and died. When you unwrap the burlap, use a very sharp, clean pruner to cut off any exposed, dead root tips by a couple of inches.

If a tree has been in a container too long, the roots may hit the pot edge and begin to grow in a circle. When they run out of room, they become matted and tangled. If you plant the tree, leaving the root ball matted, tangled and growing in a circle, the roots will strangle and eventually the tree will die. To avoid this situation remove all containers, including biodegradable, if the tree has been growing in it any length of time.

There are several options for minimizing the effects of root tangle. The gentlest option is to place both hands around the root ball, loosen and untangle the roots, then pull them apart, so they will grow away from the centre. You may have to place soil around, or on top of the untangled roots to keep them from springing back. If necessary, cut the roots back to where they curl inwards, using a sharp, clean pruner.

Sometimes, if the tree has been in a container all season, it becomes extremely root bound. The roots can tighten into a ball and pull away from the container's edge. Water will run down the sides without even penetrating the tangled mass of roots. To remedy this, take a sharp, clean knife and cut a centimetre of soil off the bottom and sides of the root ball. Don't be concerned about injuring

the tree. If you plant the tree with extremely tangled roots it would soon die from lack of water, air and nutrients.

## Finishing the job

When the tree is positioned at the right depth, with its roots properly fanned out, and the trunk perpendicular to the ground, backfill the hole with soil.

Use your fingers, or a stick, to gently push the soil around the roots. You want all the roots to have contact with the soil, but you do not want the soil to be compacted around the roots.

Create a small circular bank of soil one to two feet away from the tree trunk. This circular bank will help stop water from running away from the tree.

Apply mulch at a depth of two to three inches around the tree, but keep the mulch at least six inches away from the trunk of the tree because mulch provides greater accessibility for pests and disease agents.

## Staking the tree

Roots absorb and send water and nutrients to the crown of the tree, but they also anchor the tree in the ground. If the new tree is relatively small with an adequate root ball, it need not be staked. Only stake the tree if the roots will not support its height, if it is tall and exposed to high winds, or it is exposed to rambunctious children. Place the stake on the same side as the prevailing wind, and drive into the ground at least sixty centimetres. Current practice suggests that if the stake/s are low and protrude only fifty centimetres above ground level the tree may move naturally with the wind. The exception would be a tall, thin tree, with little root ball, which would need a taller stake.

Stakes should be driven in the ground at a forty-five degree angle, away from the edge of the root ball to avoid damaging the roots. The particular method chosen when staking a tree will depend on the amount of support that is needed. The list of methods provided below is ordered from the one providing least support to the one that provides the most support.

- One low stake
- One tall stake attached by fabric strips at two different heights on the trunk
- Two stakes on either side of the tree
- Three stakes in a triangle

Attach the stake to the tree using a flexible fabric strip that will expand as the tree grows. Fabric strips will not chafe the bark when the tree sways in windy conditions. This will ensure that any movement, caused by wind, will not result in damage to the trunk. Commercially manufactured tree ties are also available. Check periodically to make sure the bark is not being damaged in any way. Remove strips and stakes after the first year.

## Water and fertilizer

Fertilizing a new tree after planting is not necessary, although if planted in spring this would not be harmful. Never fertilize in the fall because this will promote new growth that would be susceptible to harsh winter weather. You

may, however, consider giving the tree a dose of 'plant start' to promote vigorous root growth.

Water everyday for the first week except on the days when it pours rain. Gently pour two large buckets of water over the soil, or turn the hose on dribble and leave it under the tree for as long as it would take to fill two buckets with water. A sprinkle with the hose for a couple of minutes does more damage than good because this does not provide enough water to penetrate deep into the soil. Sprinkling water in this way will cause the roots to start to grow up towards the moist soil instead of down into the surrounding earth.

After the first two weeks, and depending on the weather, water deeply every two or three days for a couple of weeks, then twice a week for a couple of weeks, and then once a week until frost. Newly planted trees must be watered regularly for the first two – three years.

## References

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***Date revised: January 2012***

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