Tree Health

**Drought Stress:**

If Mother Nature doesn’t provide at least an inch or two of rain each month, you can help your trees by watering.

Trees need a slow, thorough soaking at least once a month. Most water is absorbed by roots in the top 6-12 inches of soil. These water-gathering roots extend outward from the trunk in all directions at relatively the same distance as twice the height of the tree. However, you can concentrate your watering from the trunk out to the tips of the tree’s branches. This critical piece of real estate is called the dripline.

There are several methods you can use to give your tree a drink. One is to turn your garden hose on a slow trickle and leave it in different zones within the dripline until each is soaked. Another method is to spiral a soaker hose out from the trunk. Maintain a 2-foot spacing between each successive coil, and be sure to extend the spiral out to the tips of the branches. To test if enough water is reaching the roots, push a piece of re-bar down into the soil. If you can penetrate 6-12 inches, you’ve probably provided adequate water.

Some trees need a little more TLC during a drought. Keep a close eye on drought-sensitive species such as magnolias, Japanese maples, dogwoods, beeches, tulip trees and birches. Also pay close attention to container plants and newly planted trees. Because they haven’t had time to establish extensive root systems, they are more vulnerable to periods of high temperatures and low rainfall.

Last, don’t forget to mulch. Mulch is any tree’s best friend. Besides minimizing evaporation of soil moisture and limiting rainwater runoff, mulch also protects the tree from mower and weed trimmer damage. Apply 2-4 inches of organic mulch around the root zone, taking care to keep it off the trunk. [[Top of Page]](http://mikestreecompany.com/health.html#top)

**Chlorosis:**

Chlorosis is a common problem of shade trees growing in the urban areas of Minnesota. Oaks tend to be highly susceptible, but many other tree species including maples and birch also suffer from this disorder. This is a chronic condition which slowly decreases a tree’s overall vigor and ability to survive.

Chlorosis is the suspension of chlorophyll formation in leaves. (Chlorophyll is the green pigment essential in photosynthesis.) The most visible symptom of chlorosis is a general yellowing or pale green coloring of the foliage. As the condition worsens leaves lose their capacity to capture light energy used to manufacture sugars used as food. [[Top of Page]](http://mikestreecompany.com/health.html#top)

**Girdling Roots:**

Urban landscapes are filled with trees that are planted too deeply. When root systems of trees are planted as little as six inches to several feet below the soil surface, they are buried too deep. These roots are unable to support the nutrient and water needs of the tree. In effort to survive, trees often create new roots from trunk tissue at the soil surface. These roots are called epicormic roots. They serve to keep the tree alive by acquiring nutrients and water.

Epicormic roots do not provide structural stability for the tree and are prone to bending, often growing in a circling pattern. If the roots grow close enough to the tree trunk they will compress the sapwood and eventually cut off the flow of water and nutrients. This disorder is called Stem Girdling Root Syndrome (SGR) and is one of the primary causes of tree decline in urban landscapes. Without treatment, SGR’s will eventually prove fatal to the tree.[[Top of Page]](http://mikestreecompany.com/health.html#top)

**Bronze Birch Borer:**

Of the number of pests which are attracted the birch trees, the bronze birch borer (Agrilus anxius) is the most important as it is both lethal and difficult to control. As an adult, the borer is a small bronze coloured beetle up to 2 inches (5cm) in length. The damage, though, is not caused by the beetle itself but by the larvae which bore into the phloem and cambium layers after emerging from their eggs on the bark. The borers' tunneling weakens and kills trees by interrupting the flow of sap. The entire lifecycle of the borer is one year from egg to beetle.

Evidence of borer infestation is a progressive thinning of the crown of the tree beginning at the top. Trees generally die after about two or three years, that is, after two or three infestations by the larvae. If caught early enough, there are insecticides available to prevent new infestations of the borer but these will not kill larvae already active in the tree. Insecticides such as dormant oil control only the overwintering egg stage. Trees with advanced crown loss will not benefit from insecticide use and should be removed.

The good news is that healthy, well-situated, well-maintained birches are more resistant to the borer. Females prefer to lay eggs in the sunlight and are less attracted to trees whose trunks are shaded. The insects are also attracted to tree wounds and so care should be taken to avoid damaging the bark of trees. Finally, trees under stress are more likely to be successful borer targets so it is important to ensure that birch trees receive adequate water and proper fertilization.

In addition, not all birch varieties are equally susceptible to the bronze birch borer. The European white birch and grey birch are considered most vulnerable, the paper or canoe birch less so and the river birch seems to be relatively resistant. To help control the Birch Borer there are several steps which should be undertaken:

* Prune out and destroy all dead or dying branches. It is important that the removed branches are properly disposed of so that new infections are not created by the transport of the pathogen within the removed branches.
* In the spring, spray or paint the trunk of the tree with Borer-Miner Killer Spray. Repeat the application every 2 weeks for a total of 3 treatments. This will help kill the young larva before they burrow into the wood of the tree trunk.
* If signs of the birch borer are identified during the season inject the tree with Pointer Injectable Insecticide. This is a fast-acting insecticide that is designed to reduce or eliminate further borer infestation by quickly penetrating and moving throughout the tree’s vascular system and killing the borer as it tries to bore into the tree.
* Ensure that the tree is watered regularly and is fertilized with a low nitrogen fertilizer. It is important that the tree’s vitality is maintained as a strong and healthy tree is less of a target for the Birch borer and a healthy tree is better able to self-repair some of the damage done by the birch borer.

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**Root Regeneration:**

Construction practices are very damaging to tree health and the soil in which it grows. Healthy soils are porous and contain the necessary organic material and life-giving micro-organisms required for plants to survive. Nutrients, water, and oxygen are readily available, allowing plant roots to grow and thrive.

Compacted soils literally have the life-giving properties squeezed out of them. They contain low oxygen and water levels and few beneficial micro-organisms. Because roots have difficulty growing and surviving in compacted soil they can become stunted or may even die. [[Top of Page]](http://mikestreecompany.com/health.html#top)

**Tree Cabling:**

Tree cabling involves the installation of hardware that is intended to reduce the risk of catastrophic failure. Support cables are used to reduce storm damage by limiting the lateral movement of branches and increasing the stress loads that the supported branch union can sustain. [[Top of Page]](http://mikestreecompany.com/health.html#top)

**Cambistat:**

Cambistat gently slows the growth of trees, allowing the tree to redirect some of its energy from canopy growth to defense chemicals, fibrous root production, and other uses. The resulting benefit of the reallocation of energy makes the tree healthier and more durable.

Some situations that may find Cambistat useful are:

* Trees too close to house
* Trees near pools, decks, patios, and sidewalks
* Trees under powerlines
* Constuction injured trees
* Declining, older, and/or stressed trees
* Trees injured by disease or insects
* Newly transplanted trees

In addition to growth reduction, Cambistat also encourages:

* Improved drought and heat resistence
* Higher tolerance to insects and disease
* Root system enhancement

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