

Mulches are materials placed over the soil surface to maintain moisture and improve soil conditions. Mulching is one of the most beneficial things that can be done for the health of an urban tree. Mulch can reduce water loss from the soil, minimize weed competition and herbicide use, and improve soil structure and aeration.

Trees growing in a natural forest environment have their roots anchored in a rich, well-aerated soil full of essential nutrients. The soil is blanketed by leaves and organic materials that replenish nutrients and provide an optimal environment for root growth and mineral uptake. Urban landscapes, however, are typically a much harsher environment and may have poor soils, little organic matter, and big fluctuations in temperature and moisture. Applying a 5 to 10 cm layer of organic mulch around trees can mimic a more natural environment and improve plant health.

### **The Benefits of Mulching**

- Helps maintain the moisture in the root zone. Evaporation is reduced, and the need for watering can be minimized.
- Helps control weeds. A 5 to 10 cm layer of mulch will reduce the germination and growth of weeds and eliminate the need for herbicide application.
- Mulch serves as a natural insulating blanket. Mulch keeps soil warmer in the winter and cooler in the summer.
- Mulch can improve soil aeration, structure and drainage over time.
- Mulching around trees helps facilitate maintenance, and can reduce the likelihood of damage from string trimmers, or the dreaded "lawnmower blight."

### **Types of Mulches**

Mulches are available commercially in many forms. The two major types of mulch are inorganic and organic.

**Organic** mulches include wood chips, pine needles, hardwood and softwood bark, cocoa shells, leaves, compost mixes, and a variety of other products usually derived from plants. Organic mulches decompose in the landscape at different rates depending on the material. Those that decompose faster must be replenished more often. Because the decomposition process improves soil quality and fertility, many arborists and other landscape professionals consider this a positive characteristic, despite the added maintenance.

**Inorganic** mulches include various types of stone, lava rock, rubber chippings, synthetic fabrics, and other materials. Inorganic mulches do not decompose and do not need to be replenished often. On the other hand, they do not improve soil structure, add organic materials, or provide nutrients. For these reasons, most professional horticulturists and arborists prefer organic mulches.

## Proper Mulching

- The generally recommended mulching depth is 5 to 10 cm. Keep the stem dry and the roots moist. Mulch should be placed a few centimetres away from the trunk of the tree, allowing the root flare zone to show just above ground level. Mulch to the tree's drip line if possible. If new mulch needs to be added, simply rake away a thin layer of the old mulch and replace it with a new layer.
- Organic mulches are usually preferred to inorganic materials due to their soil-enhancing properties. If organic mulch is used, it should be well aerated and, preferably, composted.
- Composted wood chips can make good mulch, especially when they contain a blend of leaves, bark, and wood. Fresh wood chips may also be used around established trees and shrubs however avoid using uncomposted wood chips that have been piled deeply without exposure to oxygen.



*Improper "volcano" mulching*



*Proper "doughnut shaped" mulching*

## Improper Mulching

- As beneficial as mulch is, too much can be harmful. Deep mulch can lead to excess moisture in the root zone, reduced air exchange, and may cause root rot. Piling mulch against the trunk or stems of plants can stress stem tissues, and may lead to insect and disease problems.
- Mulch piled high against the trunks of young trees may create habitats for rodents that chew the bark and can girdle the trees.
- Some mulch, especially those containing cut grass, can affect soil pH. Continued use of certain mulches over long periods can lead to micronutrient deficiencies or toxicities.
- Thick blankets of fine mulch can become matted, and may prevent the penetration of water and air. In addition, a thick layer of fine mulch can become like potting soil and may support weed growth.

City of Toronto Urban Forestry staff mulches all newly planted City trees in order to reduce water consumption and pesticide use on City road allowances and in Parks.

We welcome private landowners and landscape companies to help us to save our water resources and reduce pesticide use while keeping Toronto green through the proper application of mulch to newly planted and existing trees.

**Forest Health Care** is a holistic approach to tree care that focuses on improving the health of trees in an urban environment. Our objective is a healthy, sustainable urban forest. Trees in urban forests are often stressed by compacted soil, drought, poor planting and pruning techniques, air pollution, road salt, damage from construction and much more. Trees planted in the right sites, and properly maintained, are less likely to suffer and are more resistant to pest problems.

Pest problems are managed using a decision making process that considers the following:

- Identification of the host and the pest.
- Monitoring of the host and the pest.
- Selection of the appropriate management strategy.
- Evaluation of the management plan.

Our focus is on pest management programs that are environmentally, socially and economically sound.