
Mulch for Trees

Peoples awareness of the potential benefits to gardens of using mulch has increased markedly over the past few decades. With the recent limitations imposed on domestic water resources and the implications for water use in the garden, plant moisture stress caused by drought is becoming an increased cause of tree decline. Mulch is gaining attention as one strategy that can assist gardens to cope with hot dry conditions.

Mulch is a covering placed over the ground. Numerous materials are used as mulch and these can be broadly divided into organic products, such as wood and bark chips, shredded leaf and branch matter, recycled pallets, leaf litter, saw dust, and straw, and inorganic products, such as crushed rock, gravel, plastic, and shredded rubber to name a few. Organic wood based mulch is the focus of this article.

Signs of water stress include wilting foliage, marginal leaf scorch, lack of new growth in spring, and dieback of leaves, Many beneficial claims are promoted regarding the use of mulch; most common is the ability to save water and add nutrients to the soil. The benefit of any particular mulch will be limited by several factors, including existing site conditions, mulch type, and application, site preparation, and irrigation methods. Broadly speaking, mulch can assist in the conservation of soil water, and can improve soil characteristics.

Mulch forms a layer over the soil surface that can prevent soil moisture losses by evaporation from otherwise bare soil. This can potentially reduce overall garden water consumption. Depending on the particulate size of mulch used it can also reduce runoff. By replacing turf and other plants beneath trees with mulch, more water is available for the targeted trees and shrubs.

As mulch breaks down organic matter is incorporated into the upper soil layer providing an environment conducive to beneficial soil organisms. Increasing soil microbial activity results in the addition of nutrients to the soil, and increases soil aeration and water movement through the soil. The addition of organic matter into soil generally enhances soil water holding capacity. The insulative property of mulch has the ability to moderate soil temperatures and in conjunction with minimising fluctuations in soil moisture, can induce root growth.

In addition, the aesthetic benefits of mulch are well recognised. Mulch can be used as an effective landscape technique to provide uniform texture over large areas. More recently its use has been extended to form integral visual components of contemporary landscapes. Organic woodchip mulch is now marketed in a range of dyed colours.

Other benefits of mulch include reducing runoff and soil erosion particularly on sloped sites. Eliminating grass from around the base of trees and shrubs can potentially reduce mechanical damage caused by lawn mowers and weed trimmers. Mulch can also inhibit weed germination.

Limitations of Mulch

It should be noted that mulch can have detrimental properties. The type of mulch used and the thickness of the mulch layer are important considerations. Some mulch can reduce the amount of moisture available to plant roots by having a high water holding capacity and high impermeability to water droplets.

Moisture from low rainfall events, light rainfall and surface irrigation systems that deliver fine droplets of water, can be trapped by the mulch and lost to the atmosphere through evaporation. This effect can be exacerbated by an excessively thick mulch layer. Mulch types with fine particles in particular may form a crust, further inhibiting moisture infiltration.

Irrigation

Before installing or using any irrigation, be sure to check for water restrictions that may limit how and when water can be applied.

Efficient irrigation is essential for increasing the efficacy of mulch. The placement of an irrigation system above or below the mulch layer will depend on the irrigation volumes and spray types used. The most efficient way to irrigate a tree is to use a drip irrigation system placed beneath the mulch on top of the soil. This system has very low evaporation rates and avoids the potential of delivered water being held within the mulch. Installing drip irrigation beneath the mulch can also help to suppress weed germinating in the top layer of the mulch if it remains relatively dry.

If above mulch irrigation is installed then the droplet size and irrigation volume should both be sufficient to penetrate the mulch layer and adequately wet the soil beneath.

Guidelines for Mulch Application around trees

1. The greater the area of root zone that is mulched and free of other plants, the less competition for water, air and nutrients and the more benefit to your tree. The area to be clear of vegetation around a tree should be a radial measurement equalling either half the tree height or to the edge of the dripline, whichever provides a greater area. This may not always be practical, so as an alternative apply a 1m radial spread of mulch for small trees, 2m for medium sized trees and 3m for large trees.
2. Remove or kill grass, ground covers and unwanted plants from the area prior to mulching. Turf can be removed by hand or for minimal site disturbance treated with an appropriate herbicide. Care must be taken when removing unwanted plants. Most of the tree's fine water absorbing roots are in the top 10-30cm of the soil therefore major disturbance of the topsoil can negatively impact on the existing tree.
3. It is important that the soil has reasonable moisture content before the mulch is applied and that arrangements for adequate irrigation are made thereafter. Any other soil amendments such as the addition of wetting agents should be made prior to the application of the mulch.
4. Mulch should be applied directly to the soil surface. Apply a layer 7 cm to 10 cm in thickness depending on the tree species and type of mulch used. Organic matter produced as mulch decomposes provides a medium conducive to root growth. To avoid root disturbance mulch should generally not be removed. Maintain mulch depth with redressing as needed.
5. For better cultural practices, keep mulch a minimum of 20cm away from the trunk. This space will allow for air circulation around the base of the plant and help avoid potential disease problems that can arise from excessive moisture against the trunk.
6. After initial irrigation or rainfall check the soil beneath the mulch for water penetration. Either adjust the mulch or the irrigation regime as required to ensure adequate soil wetting is achieved.

Organic mulches are variable in their qualities and properties, though generally mulching in conjunction with an appropriate irrigation technique can be a beneficial practice for the maintenance of tree health. Make sure that the mulch you choose is appropriate for the desired use and is applied and maintained correctly to receive the full benefit.