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## Watering Mature Trees Guidelines

### Is watering my mature tree necessary?

Mature trees can have large water requirements and may lose up to hundreds of litres of water daily through their leaves, especially in hot and/or windy weather. Trees will experience stress if insufficient soil water is available for use by the tree to replace the water lost through the leaves. Continued stress can lead to serious problems for your trees. Supplementary watering when required can assist in maintaining your tree's health.

Landscape trees commonly grown in Australia originate from many different climate zones and have different water needs. Knowing what trees you have and what their water requirements are will help you understand their watering needs. If in doubt, hire a knowledgeable, certified arborist for advice.

### Some signs of water related stress

Signs of water stress include wilting foliage, marginal leaf scorch, lack of new growth in spring, and dieback of leaves, twigs and branches. The premature shedding of leaves without the appearance of the wilting or leaf scorch is another response to water stress.

**These signs, whilst indicative of water stress may also be indicative of other tree health problems. If unsure, consult a knowledgeable, certified arborist.**

### How do I know if my tree needs water?

Before you decide to water your tree, check to make sure that water really is needed by assessing soil moisture. Don't rely on the appearance of the soil surface or signs of water related stress in lawn or other shallow rooted plants near the tree. Turf irrigation systems often wet only the top 10-15cm of soil, leaving the soil below dry. Trees can die of water stress while sitting in a green lawn.

Most of the fine water absorbing roots are located in the top 10 to 30cm of soil. Checking the soil moisture at depth in the tree's root zone is the most appropriate means of determining relative soil moisture. Undertake a basic soil moisture test by digging a small hole or probing the soil to a depth 40cm at the dripline of the tree. If the soil is moist at this depth water is not needed. Wait a week, or longer between periods of no rain to check again. A tubular steel soil sampler, roughly 60cm in length, is ideal for checking soil moisture at depth.

### How frequently should I water?

Soil should be kept moist but not saturated for any length of time, and soil should never be allowed to completely dry out. Soil moisture sampling provides the most accurate indicator for determining tree watering requirements. However, as a rule of thumb, watering mature trees deeply every week or two during dry periods throughout the growing season (September through to April) can be beneficial, especially for stressed trees, and may assist in keeping trees alive during times of drought.

Excess water is just as bad for trees as too little water. Waterlogging excludes oxygen from the soil creating anaerobic conditions, resulting in reduced root function that can lead to root death. Signs of waterlogging can often resemble signs of nutrient deficiency and include yellowing or paleness and mottling of older leaves and sometimes eventual death, and stunted growth. Wilting of young shoots and leaves may occur and brittle green leaves may be present. Damaged absorbing roots will be blackened and the bark may peel away. Prolonged waterlogging can result in root decay which can create a sour sulphurous smell in the soil.

## Watering methods

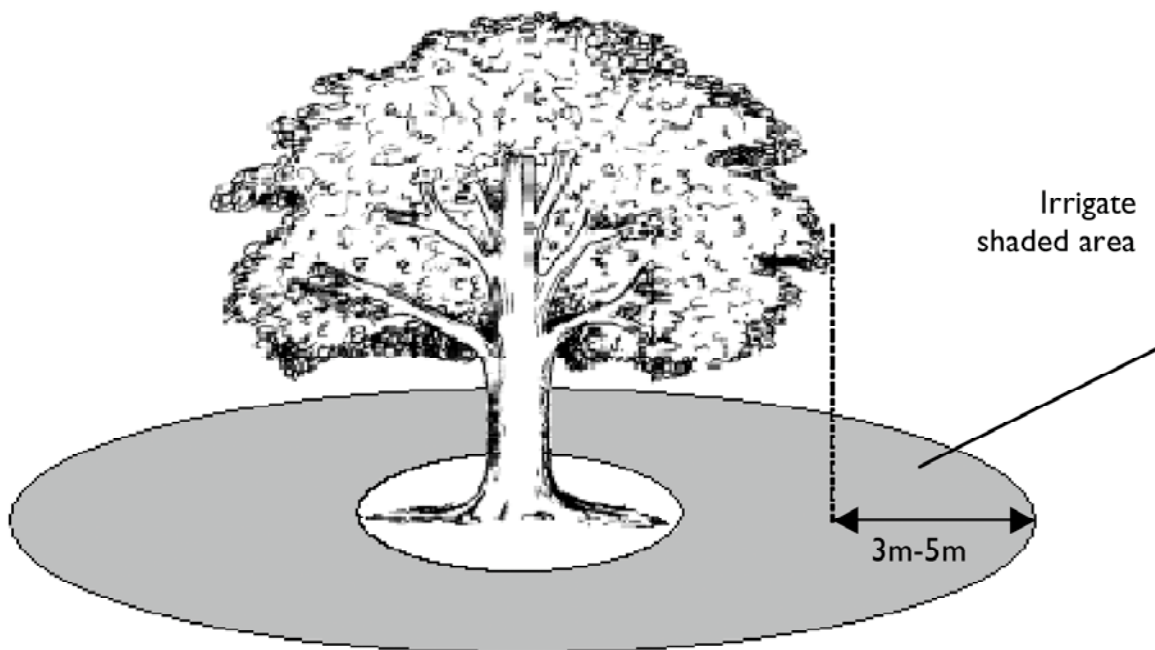
**Before watering, be sure to check for water restrictions that may limit the type of watering system used.**

The adage “water deeply, less frequently” is correct. Slow watering that provides an even coverage and targets the absorbing roots is the key to successful watering and encourages a deep root system. Frequent, light applications encourage shallow root development. Shallow roots are more susceptible to summer heat stress, winter cold injury (particularly in southern areas of Australia), and drought stress.

Watering is best undertaken using a low pressure system such as drip irrigation or soaker hose. Apply sufficient water to moisten the soil to a depth of 40cm. Depending on the tree size, method of irrigation and soil type, this may take several hours. After watering, check that water has penetrated by undertaking a soil moisture test as outlined above.

Avoid creating water runoff as this wastes water and does not allow the water to reach the targeted area. Runoff can occur if the irrigation system has a high flow rate, or if water is applied to a sloped area. If runoff is observed it may be necessary to reduce water pressure or start and stop the watering several times to allow the water to soak in.

Watering near the trunk is unnecessary as for most trees there are generally few water absorbing roots in this area. Irrigating the soil from half-way between the trunk and the dripline to 3m-5m beyond the dripline will provide water to the tree where it can be most effectively used.



## When to water

**Before watering, be sure to check for water restrictions that may limit when water can be applied. Water trees during the cooler times of the day, preferably in the evening and early morning.**

Temperatures are lower, humidity is higher, and the air is calmer at these times, so less water evaporates from the soil surface. Watering in the middle of the day is not harmful to most trees, but is less efficient due to evaporation. Water before the soil dries out. In some instances the soil may have become dry as to repel water (hydrophobic). The application of a wetting agent under these circumstances may improve water infiltration by reducing surface tension allowing the soil to rewet.

## Conserving water

Maintaining a 7cm to 10cm layer of mulch over the root zone can reduce the amount of water that is lost from the soil through evaporation. Some organic mulches also have the benefit of adding nutrients to the soil as they break down, and improve soil structure aiding in water and air penetration. However, the properties of some organic mulch can actually inhibit water penetration to the soil and careful selection of the mulch type is required.

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. 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.

Fertilize lightly. Overfertilization can stimulate foliar growth which increases tree water demand. If insufficient water is available to meet this demand the tree will suffer drought stress. In addition, heavy fertilization increases salt concentrations in the soil and reducing soil water availability.

Heavy pruning during late winter or spring stimulates new growth increasing leaf area and tree water demand and susceptibility to drought stress. Prune to remove only dead, diseased or dangerous branches.