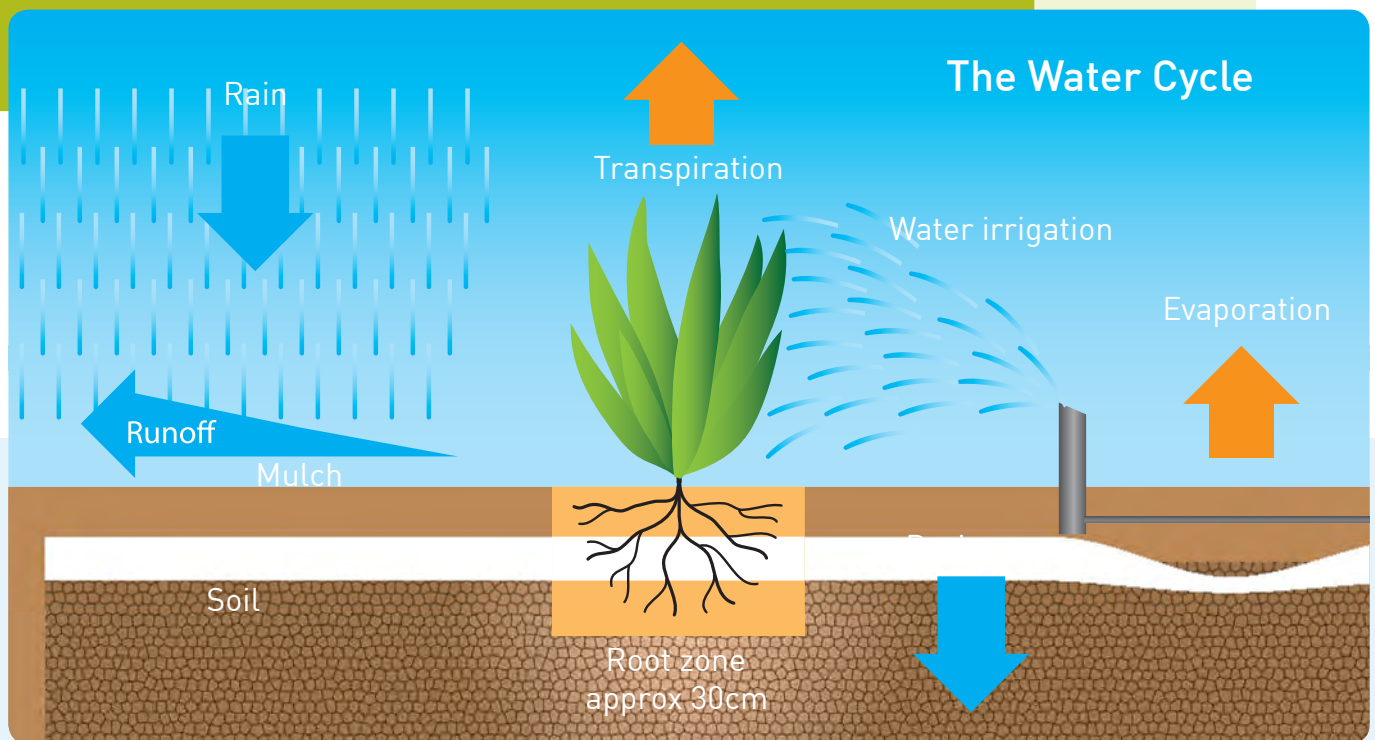


YOUR GUIDE TO GOOD LANDSCAPE WATERING



Drought and water restrictions in many parts of Australia have shown us that water is a scarce and precious resource. Many gardeners have found to their surprise that their plants survived, even thrived, despite receiving less water due to restrictions. In other words, most gardens are regularly over-watered. Just because water restrictions permit watering at a certain time doesn't mean you need to water. And even where there are no restrictions we should all be doing our best to conserve water. Reducing the water you give your plants will also save you time, effort and money and you will still have a healthy garden.



The diagram above shows that water is added to the soil through rain or irrigation. It is lost from the soil surface through evaporation and is transpired through the leaves of plants as they grow naturally. Water can also run off the surface and drain through the soil.

Plants draw water from the soil where their roots grow. If you overfill the soil, water will be wasted through runoff or by

draining below the root zone. Additionally, too much water will result in a waterlogged soil that can cause root rot and disease that kill plants. If the soil dries out for long periods or too often it can become water repellent and your plants could wilt and die.

Your challenge as an irrigator is to manage water applications so that there is just enough water in the root zone for your plants to stay healthy.

Important steps in creating a healthy landscape that uses less water are:

- Understanding your soil type.
- Improving the soil so that water infiltrates and is held effectively.
- Understanding when and how to supplement natural rainfall only when necessary.
- Installing a professionally designed, well-maintained irrigation system.

The importance of soil

A healthy water-saving garden is a by-product of a healthy soil. Soil types can vary dramatically between localities and even within a garden.

Understanding your soil

Loam soil: is the ideal soil for water retention and plant growth because it holds water and drains well. Water deeply and infrequently.

Clay soil: feels sticky, holds moisture for long periods, but can become compacted and impervious and it absorbs water slowly. So it's easy to waste water that will run off the surface rather than penetrate to the root zone. Water it deeply at long intervals, watering it slowly, so that the water can soak in.

Sandy soil: feels gritty, is thirsty and will take in a lot of water but dries out quickly. Water can be wasted because it just drains away or because the soil is water repellent. Theoretically, if you have sandy soil you should apply smaller amounts of water more often, however, water restrictions (if enforced in your State) prevent this approach.

Improving your soil

The key to saving water is to improve your soil.

Add organic matter to improve both sandy and clay soil. Types of organic matter include coir or cocopeat, compost, green manure, aged animal manure, mushroom compost, straw, worm castings, grass clippings, composted horticulture bark. Lime will improve clay soil and gypsum works on some clay soils.

Mulch reduces evaporation, insulates plant roots from temperature extremes, reduces weed growth, reduces runoff and adds nutrients to the soil. Apply it thickly (7cm) to wet soil; keep it away from the base of trunks and stems; reapply regularly, loosen regularly to ensure water penetration.



Spread mulch on the soil surface to prevent evaporation and conserve water.



Dig in organic material (coir in this instance) to improve the soil structure.

Understanding your plants

The rate at which plants lose water through transpiration varies with the type of plant and location. Where possible choose low water use plants suited to your conditions and group plants (Hydrozones) with similar water needs so you can water different parts of the garden differently, whether by hand or with separate irrigation zones. It is best to give trees, shrubs, many perennials and turf thorough soakings rather than light surface waterings to encourage deeper roots. Deep rooted warm season turf can survive on relatively infrequent watering. Annuals, vegetables and plants in pots may need shorter, more frequent waterings.

Guidelines for efficient irrigation

Sources of water

Whether you irrigate by hand or by a fixed system, water restrictions may apply to irrigation that uses mains or bore water supply. Consider installing a tank, bore or dam to collect rain water where possible, and whether greywater recycling is appropriate for your garden.


How much water?

The amount of water you need to apply to your garden will relate to your location and climate, soil type, planting scheme, the impact of wind and shade, whether the garden is mulched, and of course the rainfall.

As a rough guide, mixed plantings in a warm temperate climate, such as Sydney, require approximately 10–20mm (½ to ¾ inch) of water every 7–14 days in hotter months, and every 2 to 3 weeks in winter. Drought tolerant plants would require less water.

How often to water?


Stretch the intervals between watering based on observations. Dig a hole to the root zone occasionally to observe the moisture level or only water when plant leaves start wilting. Adjust your watering to the amount of rain that has fallen or is expected and to the temperature.

 TIP – buy a rain gauge so you know exactly how much rain has fallen.


How long should I water for?

To apply the right amount of water you will need to know:

 The flow rate (Litres / Minutes) from your tap

 How long it takes to apply the desired quantity using a hand held hose.

or

 The application rate of your irrigation system.

Test your flow rate and pressure

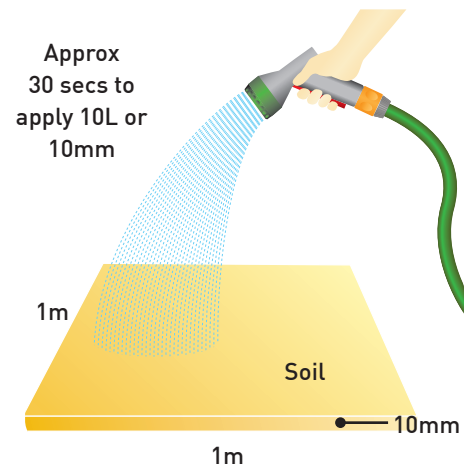
A simple way to find out your water flow rate is to measure how long it takes to fill a 9 or 10 litre bucket with the tap fully open. As an example let us assume it takes 30 seconds to fill a 10 litre bucket or watering can = 20 litres/minute = 1200 litres/hour. Tap pressure varies, so you should test yours for yourself.



= 30 seconds to fill
= 20 litres/minute
= 1200 litres/hour

Hand hosing

If you are using a hand held hose measure the flow rate into the bucket using the length of hose and fittings that you normally use (this may vary from different taps).



Let us assume you want to apply 10mm of water to your garden. If you put 10 litres of water over a square metre area you will deliver the equivalent of 10mm. So if you are using a hose that takes 30 seconds to provide 10 litres, you should water each square metre of garden for no more than 30 seconds (50 minutes if you have a 100 square metre garden). This will be sufficient to ensure deep watering to the root zone. Any longer is very likely using more water than necessary. Avoid light sprinklings that barely penetrate the soil and encourage shallow rooting.

Use a trigger nozzle or water wand on your hose. This enables a gentle application that allows water to penetrate to the root zone, whereas a hard stream may just run off surface. It also prevents you wasting water on paths as you move around the garden. Ensure an even distribution of water across similar plant types. Water early mornings to reduce evaporation and fungal problems. Direct water at the root zone, not the leaves.

Irrigation systems

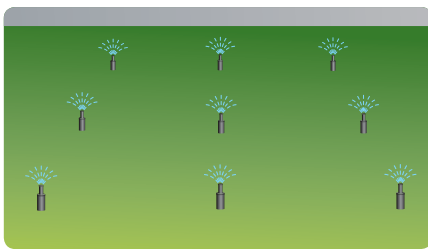
A well designed and operated automatic irrigation system is the most efficient way to apply water. It is possible to buy DIY irrigation kits, but most people would benefit from seeking professional advice as irrigation systems can still waste water if they are poorly designed, installed and operated. Seek advice on DIY installation from a qualified irrigation stockist.

Steps to efficient irrigation

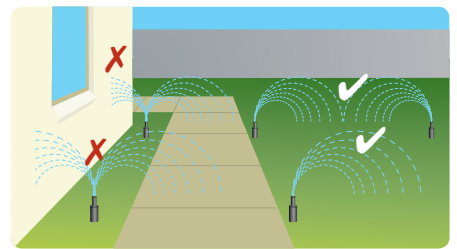
For a fixed irrigation system you should measure the flow rate directly from the tap the irrigation system will be connected to. The flow rate will determine the number of emitters (e.g. drippers, sprinklers, sprayers) you can run at a time. The flow rate from each emitter and the soil type will determine how long the system must run to deliver the required amount of water. Program the system to suit the changing seasons.

DO

Space emitters to apply water evenly



Only place emitters where they are needed. Make sure they only water plants, not buildings or pathways.

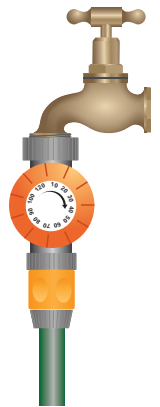
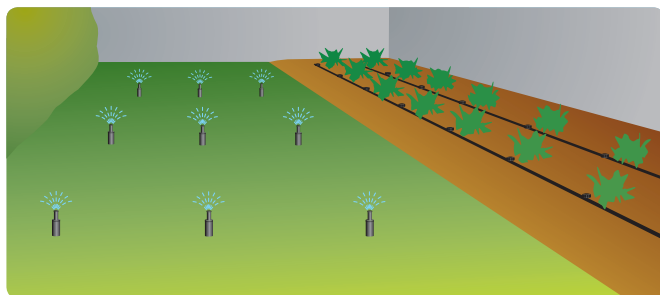


Check and maintain your system regularly. Look for leaks, blocked nozzles, plant growth that is blocking spray heads.

Install a rain switch or soil moisture sensors that will override automatic controllers.

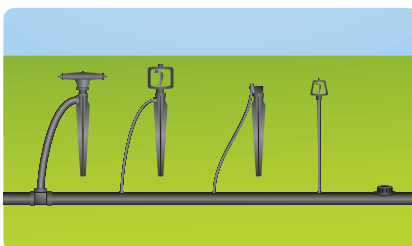
Divide the system into zones as required by garden size, flow rates or planting scheme. E.g. different zones for vegetables and lawn.

Use a tap timer or electronic controller to control the time and amount of watering. Check local backflow prevention requirements.

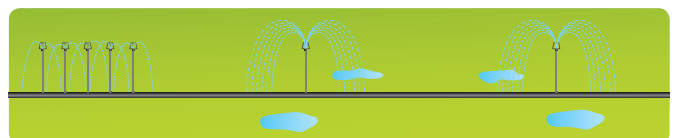


DON'T

Don't mix different types of emitters on the one watering zone. E.g. never mix drippers with sprayers or sprinklers.



Don't put too many emitters (insufficient water will come out) or too few (will result in high pressure and wasted water) on one line.



Have your garden irrigation system professionally designed. Details of certified irrigation specialists can be found at www.irrigation.org.au.

Look for water efficient products bearing the Smart Approved WaterMark logo – for a full list visit www.smartwatermark.org.

