



YOUR GUIDE TO WATERWISE GARDENING

Water is a precious resource and Western Australia is being severely impacted by climate change, resulting in the driest years on record. The average Perth household uses around half of their water in the garden, which makes it a great place to start saving water. Waterwise gardens use less water and are low maintenance, leaving you with more time to relax and enjoy your surroundings. Follow the tips provided for a beautiful waterwise garden.

Having a waterwise garden will:

- Save water - every drop counts!
- Reduce your impact on the environment (e.g. less fertilizer leaching).
- Reduce maintenance (less pruning and mowing required).
- Save money on water bills!

WHERE DO I START?

Select waterwise plants to create an attractive, low maintenance garden that helps conserve our precious water resources.



HOW DO I DO IT?

PLANNING AND DESIGN

Some basic planning is critical to achieve a beautiful and waterwise garden – just follow these handy hints:

- Take the time to observe the microclimate in different parts of your garden (e.g. sunny, shady, windy, etc) – this will allow you to select plants that are best suited to particular conditions.

Consider the topography of your garden for positioning different plants. Choose hardy, deep rooted plants for sloping areas where water tends to run off rather than infiltrate the soil. Place thirsty plants in depressions where rain (and irrigation) water collects.

- Group plants with similar water requirements together so you can irrigate them efficiently – this is called “hydrozoning”. Waterwise Garden Centres label their plants as ‘one, two or three drop plants’ to assist you with grouping them in the garden. To locate the nearest accredited centre just follow the ‘Save water’ links from www.watercorporation.com.au.
- The majority of your garden should be set aside for hardy “one drop” Waterwise plants which are suitable for Perth conditions. Keep the area for thirsty or “three drop” plants (including vegetables and annual flower beds) to a minimum, and locate these close to the house for maximum enjoyment.
- An incredibly diverse range of Waterwise plants are available, so you can create any style of garden you like – including Mediterranean, cottage, formal and even tropical themes! Garden design ideas and compatible species lists are available from the Water Corporation at www.watercorporation.com.au

PLANT SELECTION

- The Perth area has unique and challenging gardening conditions due to our Mediterranean climate, with long, hot, dry summers and short, cool winters. Consider using native plants that are ideally suited to your conditions and need minimal watering once established. Local native (or indigenous) species have the added bonus of providing food and habitat for local fauna. There is a huge range of hardy exotic species that are well suited to Western Australia's conditions but are not invasive weeds. You can get some help in choosing stunning waterwise plants for your garden from a number of places.
- Visit your local accredited nursery or garden centre and enquire about species suited to your area. They can also help you to identify your soil type characteristics, including texture and pH (a measure of soil acidity/alkalinity)
- The Water Corporation's "Waterwise Plants for Perth" is an excellent database of native and exotic plants that (once established) will flourish on one watering a week or less during summer – follow the links from www.watercorporation.com.au.
- The Wildflower Society of Western Australia provides species lists for the different Western Australian soil types – visit the website <http://members.ozemail.com.au/~wildflowers/Soils.html>.



TIMING

Autumn (April and May) is one of the best times to plant in Perth due to the cooler weather. Give your new plants the best chance to thrive by planting at the right times.

LAWN

Lawns typically need more water than hardy shrubs and ground covers. They are also higher maintenance, so when planning your garden, carefully consider whether you need lawn, and if so keep it to the minimum area required.

Hardy ground covers or stylish paving can make a great lawn replacement (but avoid creating heat traps near the house from pavers that transfer summer sun into the house slab or reflect heat up onto windows).

If you do decide to have lawn, choose a water-efficient species such as Saltene, Zoysia or one of the soft leafed Buffalos. Soil preparation is also important to improve the water efficiency of lawns.

POTPLANTS

If establishing a garden in pots, use a premium grade potting mix – it has a higher water holding capacity so you will not need to water as often.

Unglazed clay pots are porous and dry out quickly. Coat these with a sealing agent prior to planting, but make sure the drainage holes are clear.

PREPARING YOUR WATERWISE GARDEN – SOIL CONDITIONING AND MULCHING

Adding soil conditioner to your garden beds and pots along with a layer of coarse mulch can help you create a thriving, water-efficient garden.

SOIL CONDITIONING – WHAT CAN I DO?

The secret to a flourishing garden is well prepared soil...so be ready to get your hands dirty!

A well conditioned soil:

- Is filled with plenty of organic matter and abundant soil life.
- Has a pH (soil acidity/alkalinity) neutral to slightly acidic (pH 6-7).
- Is free draining while still able to retain moisture and nutrients.

The first rule of successful, low maintenance gardening is to feed the soil, not the plants. A well conditioned soil will support plants without the need for regular applications of chemical fertilisers, which can quickly leach through our sandy soils and contaminate groundwater and water ways.



HOW DO I DO IT?

To improve the quality of your soil, add organic matter such as:

- Compost – make your own with a range of organic household materials, with the added benefit of reducing your household waste.
- Worm castings – become a worm ‘farmer’ and get your ‘workers’ to create this wonderful soil conditioner.
- Aged animal manures (e.g. chicken, sheep, cow, horse) – these are great for growing veggies and other hungry exotic plants. Remember that manure is nutrient rich and should be used lightly. It may also harm some native plants. There are specialist slow release fertilisers for natives – just ask your local nursery for further advice.
- Packaged organic fertilisers (e.g. blood and bone, chicken manure pellets and liquid organic fertilisers) – these feed your plants and also improve the soil (just follow the product recommendations).
- Organic mulches – these break down to improve the soil.

Organic matter can be dug in prior to planting or laid on top of soil in an already established garden. Either way, it will break down and improve your soil. Always add soil conditioners prior to planting and at least twice a year to established plants. Check your soil pH with a kit from your local nursery. Most plants prefer a pH of around 6-7. If your soil is not within this range, the local nursery will be able to recommend an appropriate product to adjust the pH level, or suggest plants suited to the conditions. Remove all weeds from your garden area – weeds compete with plants for soil nutrients and water. Apply wetting agent to your soil in early Spring and late Summer to counter Perth’s water repellent soil.

WHY?

BENEFITS	SOIL CONDITIONING
Improves soil structure as well as moisture and nutrient retention	X
Encourages microbiological activity	X
Makes plants healthier	X
Reduces the water needs of your plants, helping you save water	X

MULCHING

WHAT CAN I DO?

There are three main types of mulches – feeding mulch (such as pea straw, shredded lupins or lucerne hay), woody mulch (such as wood chips or prunings), and permanent mulch (such as gravel or pebbles). Good waterwise mulches have coarse and irregular texture, allowing water to penetrate and the soil to breathe, whilst reducing evaporation and keeping the soil cool.

Soft mulches (such as feeding mulch) break down rapidly to feed the soil and need topping up regularly. These are suited for fruit trees, vegetable gardens and other hungry plants.

Woody mulches are better suited to deeper rooted hardy plants (such as natives) and are ideal for exposed areas as they are less likely to blow away.

Permanent mulches are mainly used for landscaping effects but also play an important role in retaining soil moisture. These are best suited to plants that have modest feeding requirements and don't drop leaves (such as succulents).

HOW DO I DO IT?

Mulch is best applied at the end of winter or the beginning of spring while the ground is moist from winter rain and before the hot, drying winds of summer. Condition your soil prior to mulching, lay mulch around your plants (keeping clear of the stem) in a layer about 5-10cm thick. Course woody mulch should be reapplied annually.

Before mulching:

- Remove any grass, weeds and dead plants from the garden;
- Put in any new plants;
- If installing an irrigation system, such as a drip system, do so before mulching



MULCHING TIPS

- Free mulch (shredded green waste) is often available from your local council. It can also be purchased cheaply from commercial tree loppers. Mulch Net is a local Perth company that arranges free mulch deliveries from tree lopping contractors (for more info visit www.mulchnet.com).

WHY?

BENEFITS	MULCHING
Improves moisture and nutrient retention in the soil	X
Suppresses weeds	X
Encourages microbiological activity	X
Makes plants healthier	X
Looks great	X
Prevents soil erosion in windy areas	X
Reduces the water needs of your plants, helping you save water	X

MAINTAINING YOUR WATERWISE GARDEN – EFFICIENT WATERING

WHAT CAN I DO?

By applying the right amount of water in the cool hours of the day and using drip irrigation you will save water and allow your garden to thrive.

HOW DO I DO IT?

Plan for Efficient Watering

Group plants in your garden together according to their water needs so you can irrigate them efficiently without over or under watering. A good place to start is with a Waterwise Garden Appraisal from your local Waterwise Garden Centre.

Watering Times

The best time to water your garden is at dawn when there are minimal evaporative losses and the risk of plant based fungal diseases is reduced. Irrigation run times vary depending on the application rate of your irrigation system, but typically range from 10 – 15 minutes per station. For assistance in determining ideal run times consult one of the Waterwise Garden Irrigators – you'll find contact details for these by following the 'Save water' links from www.watercorporation.com.au.

Watering Rosters

The Water Corporation's Water Efficiency Measures include a roster system for water users across WA. In Perth and surrounds, there is currently a two day a week roster for scheme users and an additional day for bore users. Your household watering days are determined by your house number (the last digit). Gardens can only be irrigated on your allocated days either during the morning (before 9am) or the evening (after 6pm and reticulation systems must be switched off during winter). These water efficiency measures have reduced water use in Perth by 45 million litres per year. To find out more about water efficiency measures, visit www.watercorporation.com.au

HOUSE OR LOT NUMBERS (ENDING IN)	WATERING DAYS FOR SCHEME AND BORE WATER USERS	BORE OWNERS ADDITIONAL DAY
1	Wednesday and Saturday	Monday
2	Thursday and Sunday	Tuesday
3	Friday and Monday	Wednesday
4	Saturday and Tuesday	Thursday
5	Sunday and Wednesday	Friday
6	Monday and Thursday	Saturday
7	Tuesday and Friday	Sunday
8	Wednesday and Saturday	Monday
9	Thursday and Sunday	Tuesday
0	Friday and Monday	Wednesday



Reticulation Systems – Drip Irrigation and Sprinklers

Substrata (under the mulch) drip irrigation is the most efficient way to water your plants. Water is applied directly to the roots, eliminating evaporative losses and overspray. As the water is applied to the soil rather than the foliage, fewer fungal diseases are experienced. Drip irrigation systems are reasonably priced and easy to install and maintain – please refer to the 'Installing Drip Irrigation' section further below for more information.

Sprinklers come in many varieties. The most efficient for Western Australia's conditions are the heavy droplet type which reduce wind drift and water loss. If using sprinklers it is very important to position them to get maximum uniformity of application over the area being irrigated. Avoid watering in the heat of the day or during windy times. When using a portable sprinkler and hose, always use a tap timer to ensure you don't waste water by forgetting to turn the sprinkler off.

For irrigation advice and support visit a WaterWise Irrigation Design Shop – you'll find contact details for these by following the 'Save water' links from www.watercorporation.com.au.

Hand Watering

Hand watering can be a very efficient method of watering – particularly if you use a 'trigger' nozzle to ensure minimal water wastage when moving between plants. It is important to ensure not to over water using this method. Try to keep hand watering to twice a week except in very hot conditions.

Diversified Water Sources

You can utilise rainfall by diverting water from gutters or laying paving to direct run off into garden beds to recharge soil moisture. By doing this, even light rainfall events can benefit your plants. Tanks can be used to store water for garden use but the types of small tanks that are suited to urban lots soon run out in summer. Household greywater can also be used in the garden by redirecting shower, bath, hand basin and laundry water through an 'approved greywater system'.

INSTALLING DRIP IRRIGATION

HOW DO I DO IT?

Drip irrigation is a watering system that saves water by delivering it in drips rather than a spray. It is easy to convert many existing irrigation systems to drippers. There are two main types of drip irrigation: Button drippers are individual dripper units that are manually attached to poly pipe and have either a fixed or adjustable flow rate. They are best suited to small pots and hanging baskets.

Drip-line products are fixed flow drippers set at regular intervals inside a length of poly pipe during the manufacturing process. They are ideal for garden beds as a substitute for sprinklers, particularly in narrow and irregularly shaped situations. In addition to a timer, a typical drip irrigation system will include a filter to prevent drippers from blocking up, as well as a pressure regulating valve and vacuum relief valves.

There are different drip products designed for specific applications, including bore water and greywater, and equipment such as a filter is required for optimum performance. Your Waterwise Irrigation Design Shop can assist you in making the correct choice – you'll find contact details for your nearest shop by following the 'Save water' links from www.watercorporation.com.au.

SPACING

Drip irrigation supplies a controlled amount of water to a limited portion of soil surrounding each plant and relies on the properties of the soil to spread the water laterally. It's important to tailor your system to your soil type, as water moves very differently through sand, loam and clay.

SOIL TYPE	CLAY	LOAM	SAND
Dripper interval	50cm	40cm	30cm
Line spacing	50cm	40cm	30cm



INSTALLATION

Drip irrigation can be installed into existing garden beds and laid in various patterns to suit the planting layout. Simply lay the drip line on the surface of the beds and mulch over the pipes to conceal them. If you are irrigating a veggie patch or annual flower beds where the soil is regularly worked, the lines may be left on the surface so they can be lifted when digging.

Once you have run the lengths of drip line along your garden beds, connect one end into the poly pipe supply line using a punching tool and drip line connectors. The other end can be capped using a piece of poly pipe – simply fold the end of the drip line and slip a small piece of the poly pipe over the end. Removing the poly pipe ‘cap’ allows the drip line to be flushed of debris for maintenance. If you are laying out a number of lines across a garden bed, the drip lines should be connected to a blank poly pipe ‘collection’ line that is capped off at both ends, so that if one end is opened, all the drip lines are flushed through the one point for convenience. Secure the drip line in place using pins made from stiff wire.

The use of drip line irrigation under lawn is becoming increasingly popular. Installing it under roll-on lawn prior to laying is the easiest method, but there are also machines available that can insert drip lines into established lawns. You will need to take measures against root intrusion in a subsurface area. This can be done by including a root-intrusion guard, a filter-like device that continually doses the irrigation water with a small amount of herbicide called trifluralin, a chemical that rapidly breaks down when it makes contact with the soil. In sandy soil, thorough soil conditioning is required to ensure even wetting of the root zone.

For more information on installing a drip irrigation system and for general information on creating a productive and waterwise garden – see Josh’s book *The Green Gardener* by Penguin Book.

To have an irrigation system installed professionally, consult a Waterwise Garden Irrigator. Contact details for both can be found by following the ‘Save water’ links from www.watercorporation.com.au.

WATERWISE GARDEN MAINTENANCE TIPS:

- Regularly check your irrigation system for leaks and blockages. Also check for dripping taps;
- Adjust your irrigation controller according to the seasons and switch it off in the event of rain and over winter;
- Apply wetting agents to aid water penetration if you have non wetting soil;
- Regularly top up your mulch to retain moisture in the soil;
- Remove weeds – they use water too!;
- Sweep paths and driveways rather than watering them.

WHY?

The typical household uses about 660 litres of water per day (this is about 290 litres per person per day). These volumes are steadily decreasing with the application of water conservation measures. Water use in the garden is around half the total water demand for a typical household.

By planting a waterwise garden you can reduce your water consumption and save money on your water bill.

