# How to be a waterwise gardener

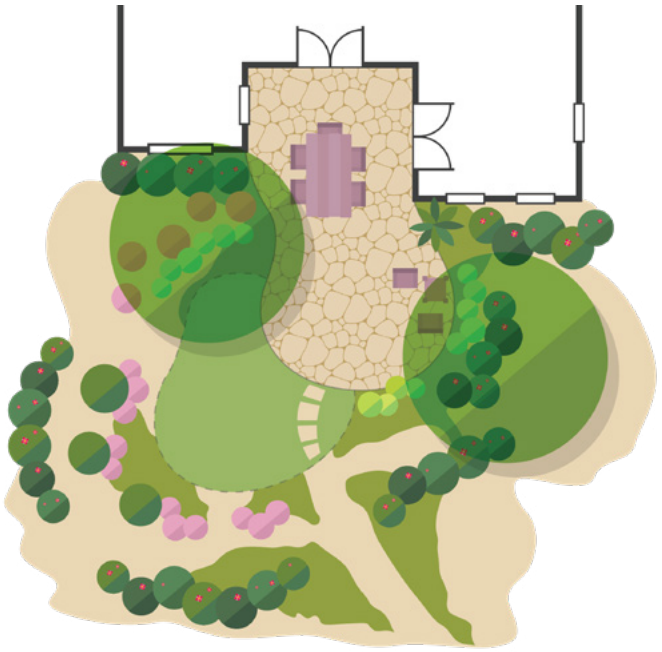
**A water-efficient garden will meet your lifestyle needs without wasting water, no matter where you live. Water-efficient gardens often require less maintenance and reduce garden running costs.**

## Plan your garden

**Good planning and design of your garden—whether new or a renovation—will ensure it is practical, enjoyable AND water efficient.**

### Plan then plant

- Draw a scaled plan of your property.
- Consider natural characteristics such as existing vegetation, drainage, type of soil, wind exposure, direction of sun and local climate.
- Landscape by planning what the different areas will be used for and considering views and areas requiring screening.
- Think how you intend to water your garden (e.g. irrigation system or hand watering).
- Determine how much maintenance you are prepared to take on.
- Consider your budget.



### Select the most waterwise plants

Plants should be selected based on the climate and soils of the area. There are many drought tolerant plants and plants that thrive in low water environments. To find water-efficient plants suited to your local area, contact a nearby nursery or see if your local council has information on waterwise plants.

**Features of waterwise plants:**

- small or narrow leaves – *lose less water through transpiration*
- light-coloured leaves – *reflect light and keeps leaves cooler*
- deep root systems – *provide increased drought protection*
- hairy or tough leaf surfaces – *reduce moisture loss*.

Some examples of plants that will tolerate dry conditions once established, as well as being somewhat tolerant of moist soil:

- Acacia
- Acanthus
- Cordyline
- Correa
- Dietes
- Echium
- Gazania
- Grevillea
- Lavender

Grevillea

Dietes

Acanthus

### Divide the garden by zones

Different plants need different amounts of water, so group plants according to their water, soil and sun requirements. For example, grass areas generally have different water needs to garden beds or trees and should be planted in separate areas. Consider how the climate differs across parts of your property. As an example, sensitive plants would be best positioned in the shade, whereas plants that can tolerate more heat and wind could be placed in the open or by a path.

### Include shaded areas and windbreaks

Shaded areas make your garden more water efficient. Shade from trees or structures helps reduce water loss through evaporation and helps create a comfortable, cooler living environment. Identify areas where shady trees, shade sails, pergolas or other structures could be incorporated into your plan – strategic placement can make a big difference.

Strong winds can increase evaporation so consider providing windbreaks to protect your plants. Trees and shrubs create protection from winds, reducing airflow and evaporation.

Consider your garden's slope; plants in higher positions generally need more frequent watering than those lower down.

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# Identify and improve your soil

**The key to a water-efficient garden is understanding and improving your soil. Soils vary dramatically between localities and even within a garden.**

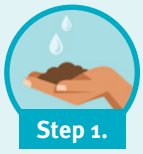
The three main soil textures are **loam**, **clay**, and **sand**; most soils contain some percentage of these three textures which determine their water holding capacity. How you water should be based on the main soil texture.

All soils, particularly sandy soils, benefit from adding organic matter such as compost and manure to help the soil absorb and hold water – meaning you can water less.

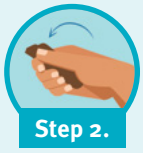
Compost also diverts your green waste back into the garden rather than into landfill. Compost works best if you have a mix of nitrogen-rich materials (e.g. vegetable scraps) and plenty of carbon-rich materials (e.g. dry leaves).

Using the right soil conditioner in your garden beds can improve moisture retention to reduce the amount of water the garden needs, provide extra nutrients and assist beneficial soil microbes that help plants to develop strong root systems and become more drought tolerant.

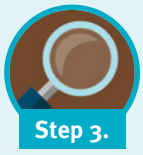
## How to determine your soil type




Gather a handful of soil, then add water gradually and mix it together in your hand until it forms a ball. If it becomes so wet it sticks to your fingers, add some dry soil.




Slowly squeeze the soil between your thumb and forefinger to form a sausage shape.

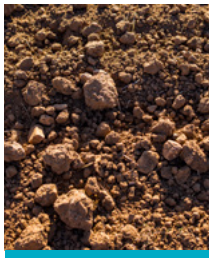



Examine the mixture:

A. If the shape remains **firm** and will bend like plasticine, it is a **clay soil**.

B. If the soil feels **gritty** and crumbly and you can't form a ball, it is a **sandy soil**.

C. If it **holds together but is still slightly crumbly**, it is a **loam soil**.


Clay soil

## A. Clay soil

Some clay soils (black, red, and grey topsoils) are rich in nutrients and hold water well. Others, usually lighter coloured soils, tend to be less fertile and water-permeable, meaning they can become compacted and waterlogged. Clay soils can sometimes benefit from digging in gypsum or dolomite.


Sandy soil

## B. Sandy soil

While these soils have low moisture and nutrient-holding capacity, they are usually well aerated, drain well and easy to cultivate. They can be hard-setting with poor infiltration once they have dried out, so using a wetting agent may help.


Loam soil

## C. Loam soil

The term 'loam' refers to any soil that is between sand and clay soils. Loams are considered to be the best soils for growing most plants as they have good nutrient levels and hold and drain water well. Wetting agents can help loam soil absorb water better.

| Soil texture | Watering recommendations |
|---|---|
| **Loam** | Water deeply and infrequently (e.g. provide the required volume of water in one continuous session). |
| **Clay** | Water deeply and slowly at long intervals. |
| **Sand** | Water in small amounts more often (e.g. split irrigation into three sessions to provide the required volume). |

## Watch for nitrogen deficiency

As organic mulch decomposes it can draw nitrogen from the soil. Watch your plants for signs of nitrogen deficiency (usually indicated by yellowing of the lower leaves) and use a nitrogen-rich fertiliser if needed.

## Mulch

Mulching is an essential element of a water-efficient garden. Using mulch liberally and regularly helps retain soil moisture. It does this by reducing evaporation, restricting weed growth, and improving soil structure as it breaks down. It also protects soil against erosion, improves plant growth by providing insulation for plant roots and moderates extremes in soil temperature.

There are many different types of mulch to choose from. Organic mulch, such as sugar cane mulch or pine bark, will decompose over time and help improve your soil. Organic mulch should be reapplied frequently, preferably in autumn and spring, to replace the broken-down mulch. Inorganic mulch such as pebbles, will help reduce evaporation but won't help improve the soil.

For the best results, prepare the soil by removing weeds, raking or digging the surface, and watering the remaining plants. Place a layer of newspaper over the soil to deter weed growth, but make sure it's not too thick as it will reduce air supply to the soil.

The ideal thickness of the mulch layer depends on the particle size of the mulch material. If using large chunks, such as pine bark, a deeper layer (more than 5 cm) is needed. Mulch made of fine particles is more prone to compaction so it should be applied in a thinner layer, around 2 cm. Be sure to keep the mulch about 6 to 7 cm clear of plant stems or they may rot.

At least once a year, dig in plenty of organic material such as compost or manure. After you have added organic matter, add a layer of organic mulch over the top. This will gradually break down and improve the soil structure.

## Have an efficient irrigation system

The irrigation system should be set up so that it can deliver the right amount of water to the right places. You should select an irrigation system and emitters that are appropriate for your microclimate, plant selection and soil type.

Different methods of irrigation, sprinklers, or drippers, could be more appropriate for different parts of your garden.

Seek advice to ensure you install a water-efficient system that is right for your soil type, climate conditions and lifestyle, and meets local council requirements. Guidelines for efficient irrigation are available at **www.qld.gov.au** (search for '**efficient irrigation**'). If you have an outdoor irrigation system installed after 1 March 2009 you should comply with these guidelines.

## Maintain your lawn

**Follow these tips to grow a healthy, water-efficient lawn.**

### Select the right grass

When planting or laying grass be sure to use a species that tolerates dry conditions and is appropriate for your soil type. The depth and quality of soil beneath your grass determines the water retention properties of your grass to withstand dry periods. There is an ever-increasing range of grasses suitable for the Queensland climate, such as Buffalo grass, Couch grass, Kikuyu grass and Zoysia grass.

### Grass maintenance

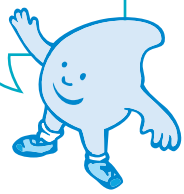
You may want to add organic matter or wetting agents to your grass during planting to improve the soil moisture retention properties. Apply fertiliser during the spring and summer months when the grass is actively growing. Remember that too much fertiliser encourages excessive growth and water use. Aerating your lawn once a year can increase the rate at which it absorbs water.

At the onset of dry periods, you should start preparing your grass for drought. There are two recommended strategies:

- Start mowing the grass higher. This will insulate the soil from evaporation—the higher the better during the most difficult times.
- Water less frequently and more deeply. Over time this will greatly reduce water usage on grass, as well as force the grass' root system deeper into the soil, where the soil moisture is less prone to evaporation.

**Whizzy's waterwise tip:**

Keep grass at least 3 cm high (some grasses will ideally be kept higher). It should only be cut when necessary and cut outside the heat of the day to prevent your grass from drying out and needing more water.



# Water smarter

**The amount of water your garden needs depends on many factors—plant variety, soil type and depth, slope of the land, presence of shade, exposure to wind, and rainfall patterns.**

By following a few simple guidelines, you can save water and enjoy a sustainable, water-efficient garden.

## Water early morning

Try to water between 5 am and 10 am—when the sun is low, winds are calm, and temperatures are cool. Less water is lost to evaporation during these times. Avoid watering in the evening as plants can remain wet overnight providing the right conditions for fungal diseases to develop.

## Watch the weather

If rain is forecast or if it is raining, hold off on watering your garden. Rainfall is a free and easy way to water your garden. Use a rain gauge to determine how much rain you receive and water again only if needed.

## Water deeply to encourage deep root growth

Water at a slower rate, for a longer time and less frequently to encourage your plants to develop deeper root systems, giving them inbuilt drought protection. This works for grass as well as garden plants. When you water your garden be sure to apply enough water to penetrate the root zone. Frequent shallow watering causes plants to grow shallow roots, leaving them more susceptible to drought and certain diseases.

(For sandy soils, follow the advice in the watering recommendations table).

## Water only when your garden needs it

Too much watering can cause waterlogging of your soil, which encourages the growth of bacteria and fungi and can contribute to plant disease.

Let your plants indicate when they need water. Wilting or leaf curling on your plants or lawns indicates that it's time to water.

Water the plants' roots (not flowers and leaves) by hand using a hose with a trigger nozzle or a watering can.

***Check with your water service provider about local water restrictions and only water your garden when permitted.***

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**More information**
For tips on being waterwise, visit www.qld.gov.au and search for 'waterwise'.

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