

SUSTAINING GARDENS IN DRY TIMES



Our Water Our Future
A Victorian Government initiative





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- Royal Botanic Gardens, Melbourne www.rbg.vic.gov.au
- Sustainable Gardening Australia www.sgaonline.org.au

The State Government's Our Water Our Future action plan aims to make water saving a permanent way of life to secure our water supplies for future generations. With some 20 per cent of household water used outdoors, we need to change our approach to watering the garden.

We want to share with you some practical and immediate ideas on how you can sustain your garden during dry times.

The Royal Botanic Gardens, Melbourne, provides a great example of water-saving solutions in practice. It has reduced its water consumption by 60 per cent over the past 10 years, through improved water use and efficiency and changing plant

selection, whilst still maintaining lush green lawns, healthy flower beds, shrubs and trees.

We recognise how important gardens are to all our residents and the enjoyment gardening brings to many people. Gardens help people feel better, encourage social interaction, increase use of outdoor space, reduce heating and cooling costs in nearby buildings by up to 20 per cent, provide oxygen and absorb significant amounts of carbon!

By following the advice in this brochure, you will not only save water, but also money, time and our environment by reducing stormwater run-off and urban salinity, while still maintaining a rewarding and successful garden.

Be rewarded for saving water. You can be rewarded for buying and installing a range of products for the garden via the Water Smart Gardens and Homes Rebate Scheme.

Rebates are available on rainwater tanks, garden products including mulch and systems for re-using household wastewater.

For further information and/or a rebate application form visit www.ourwater.vic.gov.au or look out for this logo when shopping.



A close-up photograph of several green leaves, likely from a plant like a cucumber or zucchini, covered in numerous small, glistening water droplets. The leaves are arranged in a slightly overlapping manner, with some in sharp focus and others blurred in the background. The overall color palette is various shades of green, from vibrant lime to deep forest green. A semi-transparent dark green circular graphic is overlaid on the right side of the image, partially obscuring the leaves.

ELEVEN
TOP TIPS
FOR A
WATER
EFFICIENT
GARDEN

1

DON'T MAKE MAJOR CHANGES TO YOUR GARDEN IN SUMMER

Summer is the time to maintain and enjoy your garden. The ideal time for new plants, installing irrigation systems and other major changes is Autumn as the garden has nine months to recover before the heat of next Summer.

You will need to maintain your garden in Summer by keeping up the mulch, pruning, increasing shade and reducing plants in pots. In summer disturbed soil

loses its moisture rapidly and combined with water restrictions makes it hard for gardens to recover.

In autumn, particularly once rain has fallen your new garden will be less labour intensive to create and more likely to prosper.

For expert advice on how to create and maintain a water-efficient garden including plant selection, design and how to improve your soil, contact your nearest Water Saver Garden Centre. To find the location of your nearest Water Saver Garden Centre, visit www.ourwater.vic.gov.au and look out for this sign.



2

MULCH

Mulch can reduce evaporation from soil by up to 70 per cent. Mulch is like a blanket on the soil, keeping it cool and protecting it from drying air and winds. Wind is the biggest factor in drying out your garden.

Mulch also improves soil structure, increasing water retention, soil nutrients and worm activity. Mulch is essential if you are going to maintain your garden through periods of low rainfall. And don't forget, it's covered by the Water Smart Gardens and Homes Rebate Scheme.

Coarse mulch

Chunky pinebark, fresh peastraw and lucerne, pebbles and even recycled concrete and bricks. All of these make long lasting mulch and are excellent for weed prevention and keeping soil cool, particularly if the mulch is light-coloured. If using coarse organic mulches, spread some nitrogen-rich fertiliser on the soil first, as some nitrogen may be lost from the soil as the mulch breaks down.

This type of mulch can be 50 - 75mm (3 inches) deep.

Medium mulch

Medium mulches like pine bark or wood chips are usually spread at around 25 - 50mm (2 inches) deep and are excellent for weed prevention.

Fine mulch

Fine mulch may include sawdust, grass clippings, rotted pea straw and mushroom compost. It shouldn't be laid more than 25 mm (1 inch) deep, as it may prevent water from reaching the soil. An added advantage of fine mulches is they break down quickly, attracting worms and improving the soil.



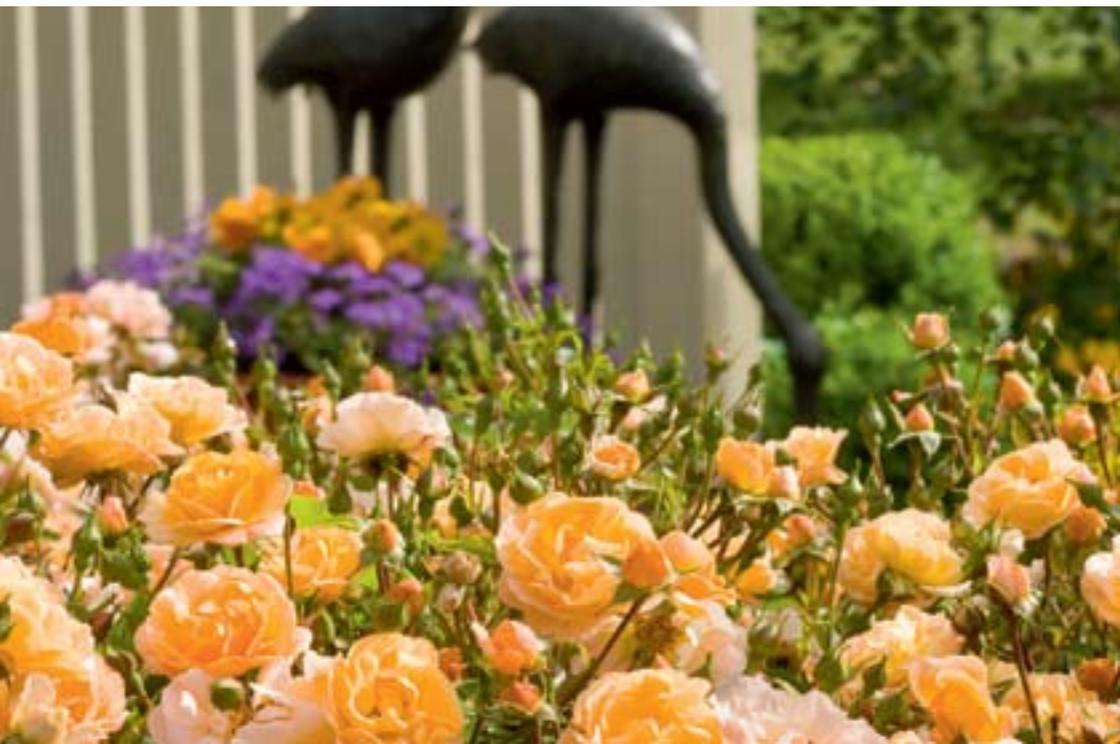
3

COMPOST

Soil is a living thing. Compost increases organic content in the soil and provides material to keep the soil alive and full of nutrients. The perfect growing soil is one that drains easily so it doesn't get waterlogged, yet holds enough water to feed the plants.

Compost will assist in both these areas. Without good soil, no amount of water will allow your garden to thrive.

Compost is easy to make at home and if you don't have a compost heap, you can start one by piling food scraps, leaves and garden waste. To find out more about making a compost heap visit www.sgaonline.org.au



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WATERING

Here's a test. Before watering your garden, push aside the mulch and put your finger into the soil. If it is moist below the surface, then you don't actually need to water.

Many healthy plants in good soils are drought-tolerant and even in dry weather conditions will not need additional watering once established. With your existing plants try watering less frequently and then not at all.

Observe them for signs of stress including wilting and leaf fall. You will be surprised how tough many of your plants are!

Less frequent deep watering encourages deep rooted plants better equipped to withstand hot, dry days.

Check the four-day weather forecast at www.bom.vic.gov.au If there's rain ahead, let the rain do the watering for you.



5

RAINWATER TANKS

Rainwater tanks are undoubtedly popular for saving water. Tanks are easy to use and now available in styles to suit every home. Rainwater tanks can also provide you with free water all year round and are not affected by water restrictions.

It's best to invest in a tank that holds at least 5,000 litres and have the tank plumbed to your toilet and laundry.

Toilets use approximately 14 per cent of drinking quality water in the house and washing machines use around 16 per cent. The tank can also be easily connected to outdoor taps and hoses.

Tanks plumbed to the toilet and laundry can be used effectively during periods of high rainfall when you don't need to water your garden.

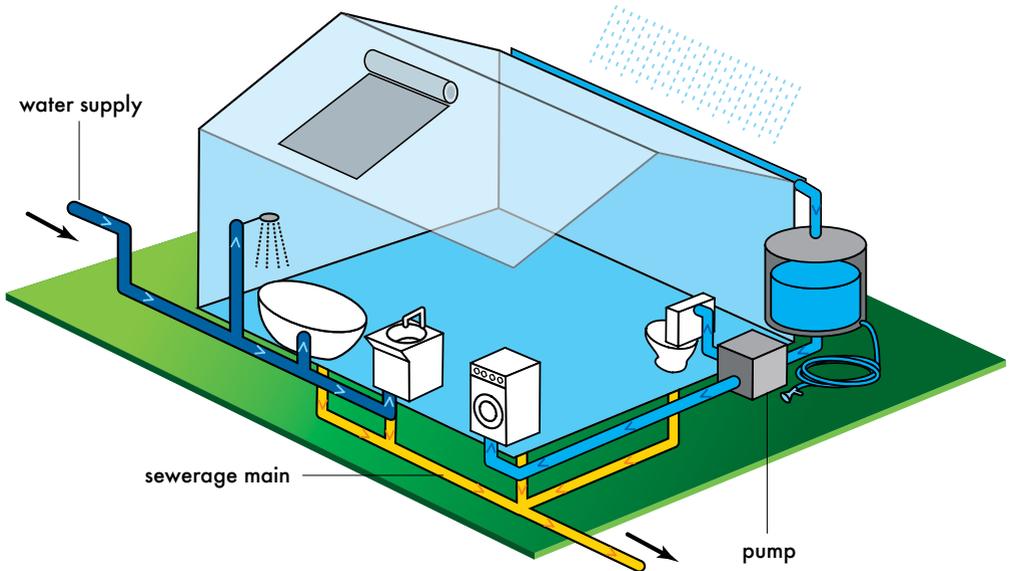
Tank water should be used in preference to greywater, especially for herbs and vegetables. Even better, use tank water in conjunction with other recommended water-saving measures like mulch, drip systems and soil additives.

If you are in the process of planning a new house we encourage you to ensure the design includes provision for a rainwater tank.



At the planning stage you can arrange for a suitable space for your tank, including underground and bladder style tanks for under your decking. You will save water and add considerably to the value and enjoyment of both your house and your garden.

Don't forget to use a licensed plumber when installing your tank, rainwater diverters and other work that involves alteration to plumbing fixtures, including down pipes and water pipes. Tanks of 600 litres or greater are eligible for a rebate when installed by a licensed plumber.



Water Smart Gardens and Homes Rebate Scheme

TANK REBATE 1 (limit 1 per property)

REBATE: \$150

(tank only)
For a rainwater tank for use outside your home (600 litres or greater).

+

REBATE: \$150

(tank to toilet connection)
(new tanks 600 to 1,999 litres, existing tanks 600 litres or greater).

=

REBATE: \$300

For a rainwater tank that collects water for use outside the home and is connected to a toilet (600 to 1,999 litres).

LARGE TANK REBATE 2 (limit 1 per property)

REBATE: \$500

Rainwater tank connected to toilet
OR laundry (tank size 2,000 to 4,999 litres).

REBATE: \$900

Rainwater tank connected to toilet
OR laundry (tank size 5,000 or greater).

REBATE: \$1,000

Rainwater tank connected to toilet
AND laundry (tank size 5,000 or greater).

Rebates are available for rainwater tanks of 600 litres or greater. Tanks must be installed by a licensed plumber, and a PIC certificate included with application. Visit www.ourwater.vic.gov.au for more information.

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GREYWATER

This is a great option for supplementing garden watering because it doesn't rely on drinking water and isn't affected by water restrictions, however, it does need to be managed carefully.

Water can be recycled from your shower and washing machine but because it contains some bacteria, detergents,

cleaning agents and waste material, it isn't suitable for all garden uses.

The best guide for using greywater in and around the household is the Environment Protection Authority (EPA) publication:

Domestic Wastewater Management Series, Reuse Options for Household Wastewater.

GREYWATER DO'S AND DON'TS

DO'S

- ✓ Only use greywater from baths, showers, hand basins and washing machines (preferably the final rinse water)
- ✓ Only use greywater on the garden and rotate which areas you water
- ✓ Only apply the amount of water the soil can absorb
- ✓ Wash your hands following watering with greywater
- ✓ Stop using greywater during wet periods
- ✓ Stop using greywater if odours are generated and plants do not appear to be healthy

DON'TS

- ✗ Don't water vegetable gardens if the crop is to be eaten raw or uncooked
- ✗ Don't use greywater that has faecal contamination, for example water used to launder nappies
- ✗ Don't use kitchen greywater (including dishwashers) due to the concentration of food wastes and chemicals that are not readily broken down by soil organisms
- ✗ Don't store greywater for more than 24 hours



The most basic and popular greywater system for the garden is the humble bucket. Buckets are a good idea for watering your garden beds but should be used with caution. A full 10 litre bucket weighs 10 kilograms and can be difficult to manage, especially for the elderly.

Never leave greywater in any container for more than 24 hours. And remember, water restrictions do not apply when using a bucket for watering your garden with greywater.

GREYWATER

Diverting greywater

You do not need permission to divert greywater from the shower and washing machine away from the sewerage system during warm, dry weather for immediate use. Greywater must not be stored for longer than 24 hours. You should however use a licensed plumber and follow the EPA guidelines.

There are a number of products to divert greywater to your garden available from your local garden centre, hardware or plumbing shop. Usually people divert washing machine (final rinse) water and shower water onto garden beds through existing plumbing inspection hatches or open doors or windows onto the garden.

If you divert from the washing machine make sure:

- the diameter of the diversion hose is not smaller than the washing machine hose
- the hose does not kink
- the water does not have to travel uphill and is not significantly slowed by travelling through the pipe (e.g. a very long connection) or it may permanently damage the washing machine pump or burst the hose connection and flood the laundry

Some systems are now available that do not treat greywater, but store it for less than 24 hours for irrigation on your garden. To be eligible for a government rebate, these systems must be EPA-approved and installed by a licensed plumber.

WANT TO KNOW MORE

For all information you need to know about greywater systems visit www.smartwater.com.au where you will find a useful study completed by the **Alternative Technology Associations** comparing six greywater systems.

GREYWATER

Treating and re-using greywater from single households

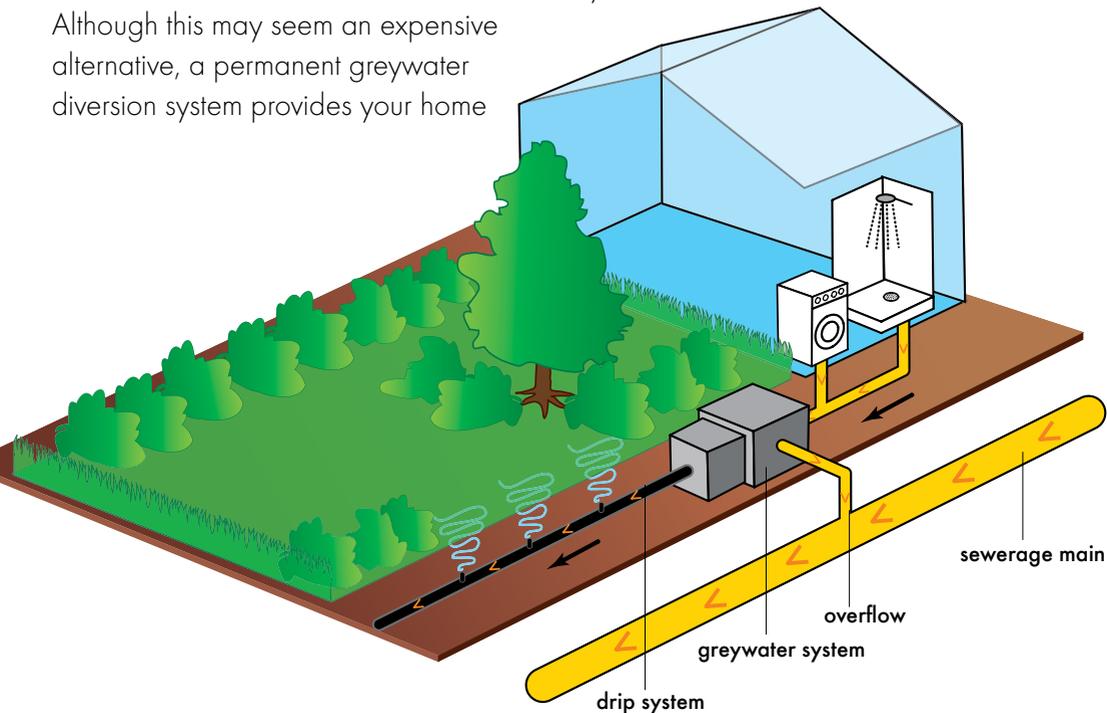
There are systems available which you can choose to treat and store your greywater and use it as a long-term valuable resource.

These systems treat greywater to a standard so it can be stored indefinitely and used inside the house, but not for human consumption. These systems are usually priced at more than \$5,000 and need to be installed by a plumber with prior approval from the EPA. A septic tank permit from your local Council is also required.

Although this may seem an expensive alternative, a permanent greywater diversion system provides your home

with a constant supply of usable water, unlike rainwater, which is seasonal. You can use this treated water to refill your toilet (14 per cent of normal household use) all year round or supply your washing machine (16 per cent of normal household use). Generally if you plan to use this water on the garden, the treated water needs to be connected to sub-surface irrigation systems.

Don't forget, the Water Smart Gardens and Homes Rebate Scheme applies to the installation of approved greywater systems.



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WATERWISE PRACTISE

There are four key things to remember about reducing water use:

- Mulch
- Drip irrigation
- Wetting agents and water storage products for your soil
- Drought-tolerant plants.

And some simple yet highly effective tips:

- Don't water in the middle of the day, in windy conditions, or if rain is likely
- Make a small dam from mulch and soil to avoid water running off the soil

- Water the roots of plants rather than the leaves reducing windspray and evaporation
- Cool season grasses should left longer in summer but warm season grasses (couch, buffalo) can be kept short
- Avoid cutting grass by more than a third of its length at any one time
- Replace struggling plants in Autumn with drought-tolerant species



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REVIEW YOUR POT PLANTS

Outdoor plants in pots use a lot more water than plants in the ground. They are more exposed to sun and wind, only have a small amount of potting mix to store water in and they dry out faster.

If you need to minimise water for your garden, one solution is to reduce your pot plants. Cuttings and nursery plants should be put into the ground in Autumn. Pot plants on terraces and small spaces that you really love should be collected together out of the wind and preferably in shade over summer. This will reduce not only the water you use, but the time you need to spend watering.

The biggest problem with pot plants and raised beds is the soil drying out and becoming resistant to water. Wetting agents can reduce pot watering by 50 per cent and water storage products (see next page) in the soil will also extend periods between watering.



When you water put the entire pot into a bucket or container of water, leaving it until no more bubbles come from the potting mix and then taking it out and letting it drain, ideally back into a container so the excess water can be re-used.

The right plant, for example a succulent, in good quality potting mix with soil additives, mulch and a glazed pot will tolerate extended dry periods and can look fantastic.

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SOIL ADDITIVES

One of the problems with soil that has dried out is it repels water, wasting the precious water you put on it. Soil wetting agents and water retention products can dramatically improve the success of new plantings and water absorption in your garden, particularly if it is already very dry.

Water crystals absorb water and release it over time as the soil around them dries out. Wetting agents enable water to soak in and water retention products store water for later release.

These items are included in the Water Smart Gardens and Homes Rebate Scheme.



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IRRIGATION

An earlier tip advises watering your plant's roots rather than the leaves. This raises an issue about the efficiency of irrigation systems including spray irrigation systems, which emit water above the ground surface, or dripper systems, which emit water at or below the ground surface.

Approximately 25 per cent of gardens have spray irrigation systems. However, drip systems are more effective as no water is carried away by the wind, they don't cause over spray and prevent excess surface evaporation.

As discussed earlier, we strongly recommend mulch for water-saving gardens. Unfortunately, a spray irrigation system operating above fine mulch will water the mulch rather than the plants, so much of the water is likely to be lost to evaporation, or absorbed by the mulch rather than the soil below.

There are products that allow conversion of spray systems to drip systems. This can be achieved by removing the spray risers and inserting 6mm drip



lines in their place. Drip irrigation systems are not permitted to emit more than nine litres per hour per metre of hose.

Water restrictions only apply to mains drinking water. You can use your rainwater or greywater quite efficiently with available technology and they are not affected by water restrictions.

However, be careful about using greywater in drip systems unless it has been well filtered. If the greywater is not filtered, it is likely the irrigation systems will block up very quickly.

IRRIGATION

There are many irrigation systems available to purchase and install. This list provides a guide to some of the most popular ones. All are compatible with existing irrigation pipe sizes. We suggest you seek the advice of a horticulturist, irrigation specialist or green gardener when planning to install an irrigation system.

WATER WEEPERS/POROUS HOSES

Simple, porous hose that sweats water out along its length. Ideally laid below mulch in small trenches it can also be laid above ground in contact with the soil, but best not laid on top of mulch.

Flow rates are likely to vary over the length of the hose in uneven terrain and depending on your water pressure.

The hoses can be combined with a filter, flow regulator and pressure regulator.

VOLUME

Flow rates are measured by the volume of water in litres emitted every hour, per metre of hose.

PRESSURE

These systems are generally designed to operate at low pressure 60-100 KPa.

Most systems will need a pressure regulator.

DRIPPER SYSTEMS

Hoses with in-line drippers at regular intervals should be placed above ground and below mulch.

Importantly these are also available in 4mm versions that can be used to retrofit existing spray systems by removing the risers and inserting drip tubes.

Some products have an inline pressure regulator and filter. Most products are not pressure compensated so there may be some variation in flow rates based.

Flow rates vary from 4-10 litres per hour per metre.

These systems are generally designed to operate at low pressure 60-100 KPa.

A pressure regulator will be required.

DIGITAL TIMERS

Digital timers ensure you do not water for unnecessarily long times and can be programmed in line with water restrictions (unless you have rainwater or greywater).

A rain sensor and a soil moisture sensor can be attached to the digital timer to ensure efficient and effective watering.

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VEGETABLE GARDENS AND FRUIT TREES

Vegetable gardens and fruit trees are an important aspect of many gardens. In addition to providing a source of food they reduce transport costs for food provision and recycle household waste through compost. As for the rest of the garden the key tools are mulch, drip irrigation, soil additives and good plant selection. There is an interesting range of relatively drought-tolerant food plants.

You can mulch vegetable gardens and if you use pea straw it will also keep your plants cooler and improve your soil, but you will need to replace it regularly. Your irrigation system will have to make allowances for digging and soil renewal. A removable weeping hose under mulch can work well.

Fruit trees should be mulched and watered with a dripper system. Using good quality soil and maintaining healthy plant stock will mean the plants need less water and will be more disease resistant.

In very dry conditions and depending on water restrictions you might just add manure or compost in preparation for the next crop. For fruit trees mulch well and consider some early pruning to reduce water demand.

Consider using water from a rainwater tank for your vegetable garden or fruit trees as this water is not affected by water restrictions.



TO FIND OUT MORE ABOUT WATERWISE GARDENING SEE:

Your local water retailer:

www.citywestwater.com.au

www.southeastwater.com.au

www.yarravalleywater.com.au

Water conservation and water restriction information. Water Smart Gardens and Homes Rebate Scheme information is also available.

www.ourwater.vic.gov.au

Our Water Our Future includes water conservation and restrictions information including the location of Water Saver Garden Centres and information about the Water Smart Gardens and Homes Rebate Scheme.

www.savewater.com.au

A one-stop-shop for water conservation.

www.bom.vic.gov.au

Weather forecast information.

www.sgaonline.org.au

At the Sustainable Gardening Australia site you can find advice on mulch to plant selection and greywater systems. Also includes addresses of certified Sustainable Garden Centres.

www.epa.vic.gov.au

The Environment Protection Authority for greywater guidelines.

