

waterwise

GARDENING IN THE TOP END



Nursery & Garden Industry
Northern Territory

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waterwise gardening

In the Top End, people use more than twice as much water as those living in other Australian capital cities. That makes us some of the biggest water users in Australia.

With increasing populations and climate change variability, now is the time for people to start thinking about conserving water by using it more efficiently.

Up to 65% of our water use is outside the house, mostly in gardens.

The garden is a great place to start saving water.

Being waterwise in the garden doesn't mean you have to compromise on having a beautiful garden. In fact, if you follow the tips in this book, your garden could look better than ever.



planning your garden

By planning your garden carefully, you can make it look great, be waterwise and avoid problems years down the track.

In the planning stages you should:

- Consider the conditions in different parts of your garden. Some areas may receive more sun or shade, some may be exposed to wind, wet or dry conditions.
- Choose plants suitable for the conditions in which they will be placed.
- Group plants that have similar watering requirements. If they're together, it will be easier to water them more efficiently and encourage stronger plants.
- Choose water efficient plants – ask your local nursery for advice on plant selection.
- Think about growing suitable trees that will provide shade for your lawn. The lawn is a big water user and shade will help reduce its water needs, as well as cooling down your house.
- Think about how tall and how wide each plant will grow. Try to avoid growing trees that will eventually reach powerlines, or plants that will make accessing the power or water meters difficult.



when to water?

The best time to water your garden is between dusk and dawn. The optimum time to water is early morning prior to sunrise, as the water will be available to the plant during the day when it is needed.

- Plan your reticulation system to cater for your immediate needs and possible garden expansion. Draw a map of your irrigation lines to make maintenance easier.
- Visit your local irrigation specialist for advice on the most water efficient irrigation and water management programs.
- Think about how much lawn you actually need. Garden beds require less maintenance and use less water.

NORTHERN TERRITORY GOVERNMENT – 2030 SUSTAINABLE LIVING TARGET:

Reduce the amount of water that the Territory households use by 20% by 2015 and a further 10% by 2020, compared to 2009 consumption levels.



getting it right from the start

By planning your garden carefully, you can make it look great, be waterwise and avoid problems years down the track.

Top End soils are generally sandy or clay loams, have low water holding capacities and high percolation rates. This means they don't retain water and nutrients very well, which can affect the health of plants.

The secret to creating a beautiful water efficient garden in the Top End is getting the condition of your soil right, so it is full of healthy micro-organisms to help feed and maintain the vigour of your plants.

A good way to test whether your soil is nutrient rich is to see if you have worms. Lots of big worms in your soil indicates good healthy soil.

Two easy ways of improving your soil condition are mulch and organic fertilisers.

mulch

Mulch is a surface cover that you put around your plants to retain water, fertilise and beautify your garden. Mulch is also good at inhibiting weed growth.

Generally mulch is organic waste that has been broken down until it is full of nutrients and ready for the garden.

Mulch is essential in all gardens because of its ability to retain moisture, reduce evaporation and as it breaks down, it adds valuable nutrient content to your soil.

Mulches include woodchips, hay, straw and greenwaste. Mulch ideally should be composted or aged to reduce the risk of burning and depleting nutrients from the soil.

Decorative gravels have become popular as a ground cover however they do not improve the soil and can be expensive.

The general rules when mulching in the Top End are:

- Mulch at the start of the dry season. This way you benefit by retaining some of the moisture in the soil from the wet season, and the mulch will not break down as quickly as what it would do in the wet. Otherwise, you can still mulch at any time of the year.
- Water and fertilise your garden beds before laying the mulch to ensure they are moist and healthy.
- Lay 150 mm (15 cm) of mulch around your plant and water in well to initiate water movement through the mulch layer.
- Do not let the mulch touch the base of the plant – this may rot your plant.
- Organic mulches break down over time improving soil structure, so they should be reapplied at least once a year to maintain their effectiveness. Finer mulches will break down quicker than coarse materials.

save your clippings

Grass clippings are great for your garden in the Top End. You can either spread them finely on your garden beds straight from the lawn mower, add them to a compost bin or pile in your yard and wait for it to break down so you can use as fertiliser.

fertilisers

Fertiliser will add nutrients to your soil which will ensure better plant growth and water retention as well as increasing resistance to pests and diseases.

It is best to dig fertilisers into the soil or place beneath your mulch to ensure optimum up-take by the plants.

Slow release organic fertilisers are the best and most sustainable products to use in the Top End. Inorganic fertilisers may be used to supplement any trace elements that may be lacking in your garden. Organic fertilisers are usually manures or composts.

You can dig fertilisers into your soil or just lay them on top. Either way they will break down and build up your soil health.

Some ideal fertilisers in the Top End are:

Manures

Aged chicken manure

Use in light, regular doses as it is high in nitrogen and may burn some sensitive plants like ferns. Water in well.

Cow or horse manure

Great for building up the organic content of your gardens and encouraging micro-organisms.

Prone to weed infestation so remove any weeds if they germinate. Use as a light mulch and water in well.

Pig manure

A great nutrient rich manure if available. Apply as a top-dressing around the base of your plants and water in.

Packaged organic fertilisers

Blood and bone

An old standard that still provides great nutrient value for your garden. Follow product recommendations or seek advice from your local nursery professional.



Pelletised chicken manure

An industry standard that is widely used. Great nutrient value to encourage micro-organisms. Follow product recommendations or seek advice from your local nursery professional.

Liquid organic fertilisers

The most effective and efficient way of supplying nutrients to your garden. There are many products on the market including fish emulsion and liquified seaweed products.

Grass clippings

Grass clippings are a great addition to your compost. Place light coverings of clippings straight onto your garden beds to help with weed control or incorporate into your compost heap for later use. Generally you can use grass clippings in the Top End as compost all year round. The only time to avoid using them is when your grass is seeding.

**organic
fertilisers
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and most
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use in the
Top End.**

Compost

You can buy some great bulk compost products locally or easily make it yourself. Generally compost is a range of organic material, such as grass, food (no meat) and garden scraps put together and broken down. The end result is a nutrient rich fertiliser to add to your garden. Seek advice on composting techniques from your local nursery professional.

Other soil additives

It is advisable to monitor your soil pH to see whether it is acidic or alkaline, and incorporate additives recommended by your local nursery professional if required.

Waterlogging of the soil

Waterlogging is considered when the soil's pores are filled with water, leaving no room for air. Of course, without the fundamental ingredient oxygen required by plant roots, the plant will not survive. This happens by killing the roots directly, or allows the plants to become vulnerable to disease producers such as pythium and phytophthora.

Waterlogged plants generally appear wilted, stunted, a little more yellow than normal and even develop dark spots on the leaves. Prolonged water logging can cause loss of leaves and death of root tips, or the entire plant. If the area is flooded during the wet season, investigate planting sedges or plants that thrive in waterlogged or seasonally inundated areas.

If some of your plants begin to die during the first days of heat after a period of cool weather (dry season), former waterlogging could be suspected. This would be an ideal time to investigate and correct prior to replanting the area.

Waterlogging indicators:

- Continuous wet surface
- Moss or slimy algae growing on the surface
- Kills or stunts your plants especially in the wet season
- Foul odour (similar to rotten egg) when you dig into the surface
- Pockets of water below the surface

To overcome and prevent waterlogging, speak to an irrigation specialist. You may require a simple surface drain filled with gravel or a special drainage system to suit the natural flow of water. Another thing to consider is that poor soil structures and garden beds of deep clay can be contributing factors to drainage problems. In this case, speak to your local nursery for advice.



hand watering

This method can be relaxing and very efficient. When doing any hand watering, it is best to have a trigger nozzle. They give you excellent control and have a variety of spray styles to choose from. Trigger nozzles ensure you don't waste water when moving between plants.



sprinklers

There is a large range of sprinklers that you can attach to your hose and move easily around your garden. These sprinklers are usually cheap and can get to all the spots you need to reach. Use a tap timer so you don't waste water by forgetting to turn them off. Avoid watering in the heat of the day and when it is windy.

waterwise irrigation

Another key to a beautiful and waterwise garden is a good irrigation system. There are many different ways to water your garden and many things you should take into consideration when choosing your irrigation system.



micro sprayers/ misters

Micro sprayers or misters are not as water efficient as drippers. Water loss is more likely due to the wind and evaporation. They will still get the job done and your plants watered if watering occurs during early morning prior to sunrise and winds.



mini-sprinklers

Primarily designed for under-tree irrigation in orchards, these sprinklers are recommended for use in garden beds to deliver water efficiently. There are many types available, however several have interchangeable nozzles or deflectors that allow for the watering of a single plant initially to a far larger area as required.

drippers

Drippers are by far the most water efficient way to water plants in your garden. They slowly disperse water directly to the roots of your plants and come in 2, 4 and 8 litre capacity per hour. Drippers are easy to install and maintain, however it is still recommended that you install an in-line filter and flush your dripper system at the start of the dry season to avoid blockages and ant nesting.

pop-up sprinklers



These sprinklers are installed to make watering your lawn easy and automated. It is essential to have a timer on your pop-ups to make sure you don't forget to turn them off. Plan the installation of pop-ups well so the spray reaches your lawn and is not wasted on pavement or roads.

A new type of pop-up sprinkler is now available on the market. It has an adjustable radius to provide an even distribution of water. For more information on new water saving products in the garden visit www.smartwatermark.org

Most irrigation specialists and hardware stores supply free fact sheets on designing and installing pop up systems. A well designed pop up system is the most efficient way to water lawns.

perforated and porous hoses

These hoses allow water to be applied slowly and can be moved to hard-to-water places. Porous hoses can be buried to supply water directly to the plant's root zone and are great for narrow garden beds.

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timers

Every waterwise garden needs an irrigation timer whether it is a manual timer, or a fully automatic system run by an irrigation controller. They are essential to ensure watering is done efficiently and you don't forget to turn your system off. You may find that installing an automatic irrigation system will pay for itself in a relatively short period of time.



The typical Top End garden has lots of lawn because it suits our active outdoor lifestyle and warm climate. Although they look terrific and make great living areas for people, lawns are high maintenance and water hungry.

looking after your lawn

People in the Top End region often over-water their lawns. Here are some ways you can maintain a beautiful healthy lawn without wasting water.

When establishing a lawn:

- Make sure you have good quality topsoil. Speak to a landscaping specialist to find out how you can improve the soil quality before planting your lawn.
- Too often people don't lay enough topsoil. Make sure it is at least 100 to 150 mm (10 to 15 cm) deep as this will ensure sufficient room for grass roots to keep out of the heat so they can forage for water.
- Pick a water efficient species of grass. Generally *Paspalum sp.* (crab grass) and *Zoysia spp.* (zoysia grass) are the most water efficient lawns for the Top End.
- Do you need so much lawn? Think of areas where you can pave or use ground covers instead of having lawn.

Maintaining your lawn:

- Turn your sprinklers off in the wet season.
- Don't mow your lawn too short. Longer blades of grass shade the roots and reduce evaporation.
- Fertilise your lawn twice a year with a good quality slow release fertiliser. Avoid fertilisers with high nitrogen levels, as this induces excessive growth and water uptake.
- Water only when your lawn needs it. Once or twice a week is usually sufficient through the dry season.
- Coring your lawn and adding gypsum to clay soils will aid root growth and improve your lawn's health and durability.

when to water

should i turn off the irrigation?

Turn your irrigation system off during the majority of the wet season and let the rains water the garden for you. You should only need to periodically turn the irrigation system back on during extended periods of no rain.

Because most Top End soils don't hold moisture well, the rule of watering less frequently and for longer periods does not apply to Darwin and Katherine region gardens.

However, these rules still apply:

- Water between dusk and dawn. Watering your garden at night minimises water loss through evaporation.
- Water vegetables around dawn to avoid fungal disease problems.
- Depending on your soil type, gradient of your property, amount of mulch and irrigation type, generally you do not need to water for longer than 15 to 20 minutes at a time. Any more than that and the water will be wasted because it will be draining straight through the soil past the root zone of your plants taking valuable nutrients with it.

renting

Whether you are renting or own your home, you can always act waterwise.

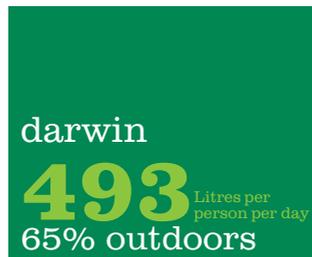
Simply try tap timers or aerators in your yard.

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can households in the wet/dry tropics use less water?

Darwin experiences a short but wet, wet season and then many months of very low rainfall. Similarly Mackay has periods of low rainfall however by planting appropriately and undertaking water efficient practices outside, have lower water use.

Darwin and Mackay are similar in size, climate and rainfall patterns.



* Queensland average.

leaks

Our family was able to reduce our water usage in the dry season from around 3,000 L per day to 2,000 L per day just by reducing the running time of our irrigation system and fixing a few broken sprinklers. We found that by reducing the time each station on the irrigation system runs by 5 minutes (down to 15 minutes per station), we were able to save lots of water and that our garden continued to thrive.

- Trevor and Maree from Leanyer

A tap that drips once every second wastes 30 litres of water daily. If every home had just two such dripping taps, we would waste over one whole Olympic swimming pool worth of water EVERY DAY. A cracked or broken pipe can waste several thousand litres a day.

Use these tricks to find hidden leaks:

- ✓ Be alert to any water hissing, dripping or running when appliances are off.
- ✓ Check kitchen, bathroom and laundry for dripping taps and washing machine and dishwasher connections. Don't forget hot water systems and air conditioning units too.
- ✓ Unstable paving or concrete and damp patches on walls may also suggest you have a leak.

Quick guide to checking for leaks:

- ✓ Turn off all taps and water-using devices at the property.
- ✓ Write down numbers on the meter.
- ✓ If the dial is not visibly moving, wait for at least 15 minutes (the longer the better as small leaks may take longer to show).
- ✓ Write down numbers again – have they changed?
- ✓ If they have, you may have a leak. Ring a plumber to fix those leaks.



Look out for wet patches in your garden or unusually vigorous/green garden growth. Check and maintain your irrigation system and if installing new irrigation, get some professional advice.

Broken irrigation heads, while technically not a leak, can waste a lot of water and water areas such as concrete that don't need it. The best way to check this is when the irrigation is on, adjust and replace sprinkler heads.

Ella Patterson Water Engineer, Power and Water Corporation

pools

Since moving into our Nightcliff home a few years ago, we have been working towards reducing our water consumption, especially in our yard.

We have a large tropical garden and by planting plants with similar water needs together, we have been able to keep our water use down. However, we do need to supplement our irrigation with some hand watering occasionally, but we can really target the areas using less water overall. We also replaced our irrigation system which was full of leaks that we just couldn't find.

Our large swimming pool is positioned in full sun and required regular top ups due to evaporation. Since installing shade cloth over our pool, we have really noticed that we don't have to top it up as often.

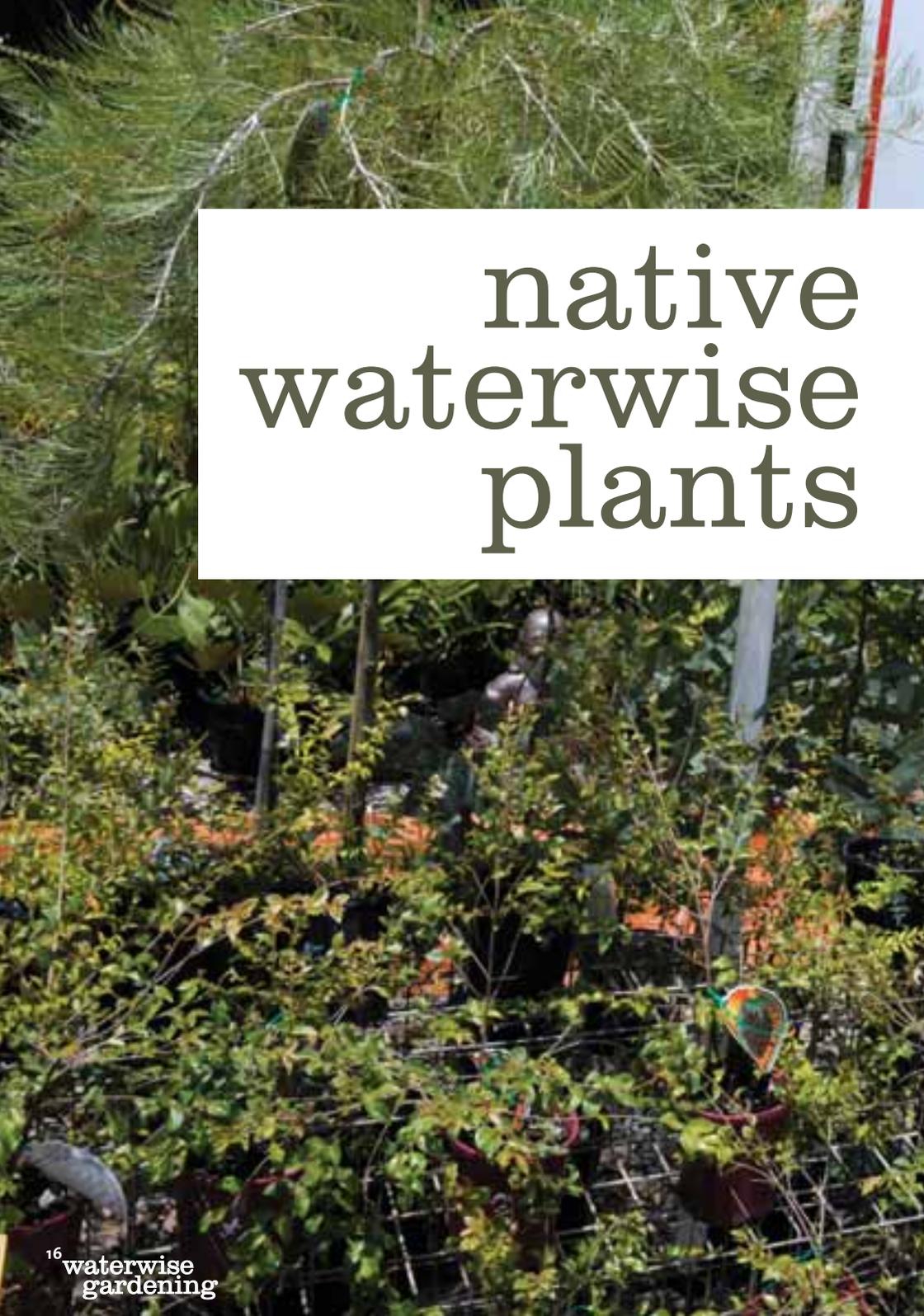
We have managed to reduce our water consumption from about 500L per person per day to 350L per person per day. It goes up a little in the dry but we hardly use any water in the wet season when we don't need to irrigate at all. Our irrigation system is switched off completely during the wet.

- Amy from Nightcliff

Pools can account for nearly one fifth of a household's water use. Some evaporates, some leaks and some goes to backwash. If you have a pool:

- Shade the pool to reduce evaporation.
- Use a pool cover to reduce evaporation and keep the pool clean.
- Keep the pool clean and empty the skimmer basket daily to reduce filter back flushing.
- Try a cartridge filter.
- Experiment with how little you can run the filter pump and still maintain a healthy pool.





native waterwise plants

NATIVES

Next time you introduce new plants to your garden, consider using natives to the Top End. They are well adapted to the local conditions, need less water and will attract wildlife.



Some great ornamental Top End natives include:

Acacia gonocarpa

Acacia nuperrima

Acacia wickhamii

Alphitonia excelsa

Red Ash or Soap Tree

Alstonia actinophylla

Milkwood

Banksia dentata

Swamp Banksia

Calytrix existipulata

Turkey Bush

Chrysopogon elongatus

Tall Tamil Grass

Curcuma australasica

Native Ginger

Grevillea dryandri

Dryander's Grevillea

Grevillea formosa

Mt Brockman Grevillea

Grevillea pteridifolia

Fern-leaved Grevillea

Grevillea wickhamii

Holly Grevillea

Peltophorum pterocarpum

Yellow Flame Tree

Pleomele angustifolia

Native Dracaena

Melastoma malabathricum

Native Lasiandra

Mimusops elengi

Mimusops

Murraya paniculata

Murraya

Syzygium armstrongii

White Bush Apple

(suitable for large gardens, seek advice from your local nursery professional)

for more information on native plants and gardening in the Top End, visit Greening Australia's website www.greeningaustralia.org.au

making your garden waterwise



tropical gardens

Most established gardens in Darwin are tropical. A typical tropical garden consists of palms, lots of lawn and other lush water-hungry plants.

There are ways you can reduce the water needs of these gardens, while ensuring they still look great:

- Consider removing some plants and replacing them with more water-efficient species.
- Make sure garden beds are mulched.

- Consider reducing the size of your lawn and replacing it with mulched areas.
- Use drippers rather than sprayers.

Some waterwise plants for a tropical garden are:

- Native ornamental species.
- Xerophytic (drought resistant) plant species.
- Non-invasive exotic species that are adapted to our wet/dry climatic zone.



PHOTO COURTESY
OF IN-SCAPE-OUT



contemporary gardens

In recent years new housing estates have boomed in Darwin and Palmerston, creating a new style of garden. The Darwin contemporary is typically on a smaller block and incorporates a mixture of potted and garden bed plants, some lawn as well as ground covers, pavers and water features.

These gardens are designed to be low maintenance and simple in style. They have the potential to be very water efficient if planned correctly:

- Have less lawn and more pavers and groundcovers.
- Plant water-efficient species in the garden and pots where possible.

- Mulch all plants, even the ones in pots.
- If building your garden from scratch, installing efficient and suitable automatic watering systems that are well maintained, can save you time and money.

Some waterwise plants for a Top End contemporary garden are:

- Cycads
- Yuccas
- Pony Tails
- Agaves
- Spider Lily
- Rhoeo
- Natives
- Vincas
- Dianella
- Draceanas
- Liriope

bush gardens

Typically found in the rural areas of the Darwin and Katherine regions, the bush garden is a mix of natives, tropical and potted exotic species. Generally the areas around the house will be well manicured and structured, and the remainder of the block will grow freely, usually being low maintenance as it consists of native trees and shrubs.

Some waterwise tips for the bush garden are:

- Use a timer on sprinklers so you don't forget to turn them off.
- Use lawn clippings for mulch and compost.

- Only water what you have to – try to let nature take care of the rest of your block.
- Retain as much native vegetation as possible.
- Think about replacing thirsty plants with suitable natives near your home – they need less water and will attract more wildlife.

Some waterwise plants for the bush garden are:

- Acacias
- Grevilleas
- Eucalypts



potted gardens

As the apartment development boom continues in Darwin, many people are leaving their houses and big gardens for high-rise living. This doesn't mean missing out on having a garden. Potted gardens are practical, transportable, easy to maintain and look great.

These tips will help you stay waterwise:

- Pot your plants into a premium potting mix made to the Australian Standard – it has a higher water holding capacity so you won't need to water as often.
- Choose larger and deeper pots – shallow pots will be prone to greater moisture loss from breeze and evaporation.
- Hand water the plants using a trigger nozzle on a hose or a watering can.
- Mulch around the plant base to retain moisture.

- Select water efficient species – they don't have to be native.
- Use a saucer on the base of the pot. This keeps your floor or pavers clean, as well as holding extra moisture for the plant to absorb. Be careful not to have water permanently in the saucers as many plants will rot.
- Remember to fertilise your potted plants regularly with a suitable slow release plant food.

Some waterwise plants for the potted garden are:

- Cycads
- Agaves
- Draceanas
- Frangipani
- Yuccas
- Pony Tail
- Bromeliads
- Bougainvillea
- Jade Plant
- Desert Rose
- Succulents

to create a beautiful waterwise Top End garden, see your local nursery, garden centre or garden professional for the right advice.



Nursery & Garden Industry
Northern Territory

nursery and garden industry nt

The Nursery & Garden Industry NT (NGINT) is the peak body representing nurseries and garden centres as well as allied traders. NGINT also represents a growing number of businesses from the amenity horticulture sector including landscaping designers, suppliers and contractors, irrigation services and garden maintenance.



NGINT's goal is to "build better businesses" by helping and supporting members to improve their performance and professionalism.

Through the national Nursery and Garden Industry Association (NGIA), the nursery and garden industry has been proactive with initiatives to address the industry's key water issues. The industry, along with the gardening public, is perceived to be a significant user of water. The National Industry Water Policy has been presented to key industry stakeholders and community groups and provides a strategic framework for developing ongoing projects and partnerships on water issues.

The NGINT is committed to promoting and educating the industry and community about sustainable water use. Gardening is an important part of our outdoor lifestyle and it is also essential for tourism, recreation, leisure and health.

It is vital that everyone takes responsibility for sustainable water use, and in the garden that means thinking about efficient watering techniques, the quality of the soil and plant selection.

For more information about the NGINT and NGIA, and gardening tips visit www.ngia.com.au or phone 08 8983 3233.

power and water corporation

Around 65% of household water is used in the garden and this is where people can make real water savings.

Top End residents are some of the biggest water users in the country, and Power and Water is striving to help its customers reduce their water

consumption and impact on the environment.

Power and Water has teamed up with the Nursery & Garden Industry NT so its customers have access to the right advice on waterwise gardening.

for more information on how to save energy and water, visit www.powerwater.com.au, call 1800 245 092 or pick up a free copy of the green guide from our customer service centres.



Darwin

Shop 28,
Ground Floor, Mitchell Centre
55 Mitchell Street

Palmerston

Shop 21,
Palmerston Shopping Centre
10 Temple Terrace

Katherine

Ground Floor,
Government Centre
5 First Street



more information

Smart Approved Watermark

SAWM stands for Smart Approved WaterMark. It is a voluntary label used on outdoor products such as pool covers or trigger nozzle hoses. It indicates that the product is water saving but does not give it a rating. For more information visit www.smartwatermark.org

savewater!® Alliance Inc

savewater! has a range of water conservation information including a home water use calculator which allows you to see where you are using the majority of water in and around your home and how this compares to the Northern Territory average. www.savewater.com.au

Greening Australia

Greening Australia is passionate about protecting and restoring the health of our land. Native plants are available for sale from their nursery. Visit greeningaustralia.org.au

Acknowledgements

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Power and Water Corporation

Disclaimer: This booklet is a general guideline about household water efficiency only. It may contain errors and omissions and may not be suitable for the circumstances of many households. The services of a competent professional should always be sought before any actions are taken in relation to household water efficiency. Individual contributors do not accept liability in any way for any errors or omissions in the booklet and do not accept any liability to any person in respect of anything done directly or indirectly by a person in reliance upon whole or any part of this booklet.



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