

BIOWEED® ORGANIC

Ready to use weedkiller

The ultimate organic herbicide for discerning gardeners

GLYPHOSATE-FREE

Bioweed is Australian certified organic herbicide made from hand tapped pine oil, making it glyphosate and synthetic chemical free

FAMILY SAFE

Safe for use around children, vegetables, animals and has no effect on birds or bees

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RAPID RESULTS

Bioweed works fast, simply shake, point and spray with visible results on most weeds species in minutes

*January 2020 Bioweed Organic satisfaction survey

of users found of users found Bioweed provided above average effectiveness!*



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The new leader in glyphosate-free weed killers

With a growing awareness and concerns with the use of glyphosate-based products, discerning gardeners are looking for natural and organic based solutions for weed control. While there are some choices available, results can vary and not always as expected.

Introducing Bioweed Organic Herbicide! Have you ever wondered why there are very few weeds in a pine forest? That's because pine oil has an inbuilt herbicide quality that kills weeds naturally and Bioweed is a culmination of 20 years of research to maximise this weedkilling action. Bioweed only uses premium and sustainably sourced hand tapped pine oil as it's active ingredient. This means noticeable results in minutes on most weeds, making it the first organic weedkiller that provides results fast.

There is no withholding period when using Bioweed Organic, compared to chemical based products and it also helps to maintains your soil health, as there is no residue. It can be used around the base of established crops offering a faster, cheaper and long-term weed control solution.

Being 100% natural, it's safe to use around children, pets and crops during and after application.





How Bioweed works.

Bioweed Organic is not a systemic herbicide but rather works by stripping the outer coating of contacted plant and seed material, causing cell collapse and desiccation. Bioweed Organic also has a pre-emergent quality as it also destroys seeds on the plant and the surface of the soil. This means with continued use, you will decrease the recurrence of weeds in your garden by reducing the weed seed bank.

Bioweed is a non-selective contact herbicide, so good coverage on the weed leaf that you wish to destroy will provide the best results. Some mature or larger plants may need a repeat application or to be slashed first before application.

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Bioweed Organic is proudly Australian owned and made on Queensland's Sunshine Coast and is available exclusively online at www. bioweed.com.au with flat rate shipping available Australia wide.





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www.sydneyediblegardentrail.com





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organic living

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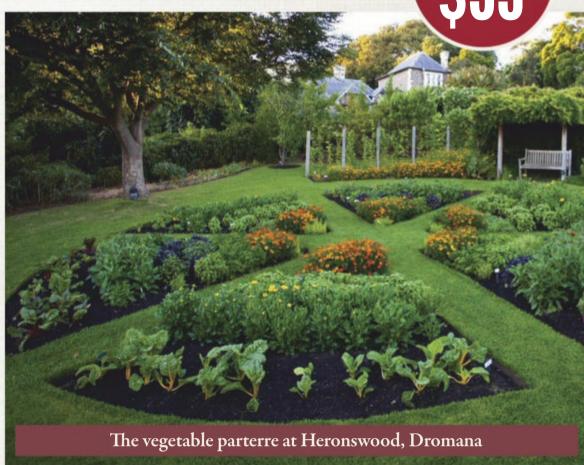
We are Australia's most popular garden club and magazine, created to help our members achieve gardening success. Our members are inspired by visiting three of Australia's finest gardens with espalier orchards and subtropical food borders full of heirloom produce.

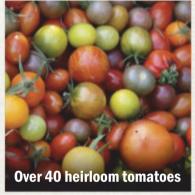
We trial and grow more food plants and summer perennials than any other grower. We can show you how to grow heirloom vegetables, space-saving and subtropical fruit trees, as well as rare edibles like capers and wasabi – all delicious varieties, full of fibre and free of nasty chemicals.

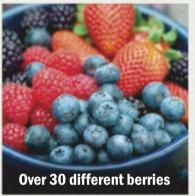
Your membership includes six magazines per year, giving you access to innovative and provocative ideas about how to become self-sufficient in all Australian climates.

Other benefits include eight free packets of seed per year, free garden entry, membership discounts, exclusive offers and more.













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There's no better way to start the year on a positive note than to subscribe to ABC Organic Gardener. Get in-depth, trusted organic gardening advice, inspiration from positive environmental stories and the truth about the challenges we face.

Subscribe now and you will go in the draw to win one of six Fiskars PowerGearX garden tool packs that will help you prune and care for your garden. See page 70 for details.

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or give as a gift 8 ISSUES OF INSPIRATION AND ACTION

SEE PAGE 70 FOR DETAILS AND SUBSCRIBE TODAY!

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Organic Gardener magazine has been printed f using recycled paper certified against the FSC R Chain of custody standard. The text is printed on Leipa Ultralux Silk, which is an offset paper made of 100% waste paper that not only satisfies the highest quality requirements but is also 100% environmentfriendly, as it uses only recycled fibres as raw material. This saves resources, energy and therefore protects the environment as well.

SUDDENLY AWAKE

s it turns out, my bushfire experience in November, which I wrote about last issue, now seems minor in comparison to the devastation wreaked on people, communities and our forests and wildlife this summer.

So much has already been said about what should have been done, what could have been done better and how to move forward. All I know is the story has changed forever.

At least one positive thing has come from the ashes, heartbreak and loss. The world and (most) Australians have woken up to the climate emergency and know that it is real and can't be denied. As well, it means action on climate change around the world will become more urgent.

We know now that the effects of the climate crisis are not 50 or 100 years off as some people were thinking, hoping. We know that the next decade, indeed the next five years are crucial. Forward-thinking governments around the world can also see the economic cost of this climate crisis and how it will climb massively if we don't limit carbon emissions and start building resilience in our communities, towns and cities.

This can be obvious and simple, such as every home and apartment building having stormwater collection and a rainwater reservoir. Why do we spend millions on desalination, yet let massive amounts of rainwater disappear down our gutters into the ocean? Every home and business needs to be powered by renewable energy. Everyone who can needs to grow food. We need to get rid of toxic chemicals and plastic at every opportunity. Everybody needs to reduce their resource use, driving, consumption – and dare I say we must address population growth or none of these actions will matter. With this comes opportunities: the growing of food and gardening is wonderful for physical and mental health; sharing food with friends and neighbours can be enriching; car sharing (although at times inconvenient) can build friendships and connections.

This issue, we cover some fantastically positive projects. Helen Cushing writes about greening city buildings, rooftop gardens and green walls (page 40). Sarah Coles writes about a different way of farming through a land-sharing co-operative (page 48), and Kate Neale writes about a wonderful school garden that is pumping out food and self-confidence for students (page 74).

Let's keep on going – one beautiful action at a time.

Stee Pane









DIRTGIRL SINGED BUT SAFE

When Cate McQuillen, creator of the children's TV gardening show *Dirtgirlworld*, celebrated the program's 10th birthday in December, the party took place in a charred landscape. Bushfire had come within one metre of her home in Whiporie, northern NSW. The surrounding bush, and Dirtgirlworld's potting sheds and gardens, were destroyed.

Guests at the party included some of the firefighters who had saved McQuillen's home, and children from nearby Rappville Public School, who had seen their own community devastated by bushfires.

"The kindness and determination to save Dirtgirlworld was overwhelming," McQuillen says. "The humbling thing is how the RFS, communities, neighbours, emergency services and strangers stood together over and over to protect, to care, to save... time and time again."

The Dirtgirlworld team are already replanting forest and McQuillen has launched REgenr8, a project that aims to help children grow trees for burnt-out landscapes. Starting at Rappville, the project aims to establish greenhouses, compost systems and pollinator gardens in schools so that children can play an active role in helping their environments recover.

"It's a combination of a habitat project and a mental health project for kids," says McQuillen, who is seeking corporate sponsorship to take the project on the road to other parts of Australia. For more information visit: dirtgirlworld.com.

From top: Dirtgirlworld was evacuated on November 21 last year but the local RFS saved the home on the property; Dirtgirl, Scrapboy and kids make 'party food'.

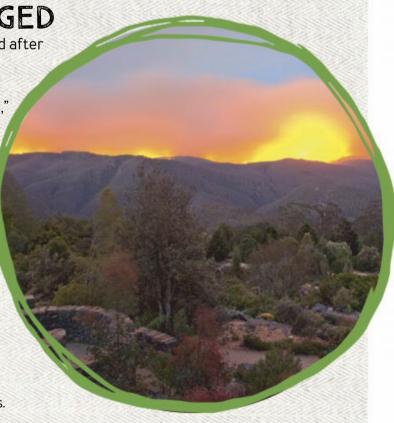
MOUNT TOMAH GARDENS DAMAGED

The Blue Mountains Botanic Garden Mount Tomah (NSW) has reopened after sustaining significant damage from bushfires in December.

"We estimate that a quarter of the living collection was impacted by fire, including the conifer and North American woodland collections," says Denise Ora, executive director of the Botanic Gardens and Centennial Parklands. "Unfortunately, the majority of the 180 hectares of conservation forest surrounding the formal garden areas was also burnt."

Most of the garden's living plant collection and buildings were undamaged. "We are extremely grateful to our staff, local community and emergency services personnel who dedicated their time and expertise in dealing with the devastating bushfires," Ora says. At the time of going to press, part of the garden was still off limits to the public for safety reasons, and the garden's phone lines were down. Most public events had been cancelled or postponed, but visitors were still welcome, and bird numbers were up as they sought refuge. For more information visit: bluemountainsbotanicgarden.com.au

Fire looms behind the Mount Tomah gardens.



EVENTS



LEARNING FROM LOCALS

The Sydney Edible Garden Trail, is a celebration of the many ways that Sydney residents are creating food security, saving money and the environment, while enjoying the many health benefits of homegrown organic fruit and veg.

Founder Bridget Kennedy (who has been working on her own edible garden for the last 18 years) was inspired by a visit to the Blue Mountains Edible Garden Trail last year, and wasted no time in organising a similar event in Sydney. As a result, backyard growers, large and small, from various suburbs north of Parramatta River, will open their gardens to the public on the third weekend of March, sharing their passion and knowledge.

This is a community event with profits going to participating school and community edible gardens. WHEN: March 21 and 22 **DETAILS:** sydneyediblegardentrail.com

HERONSWOOD HARVEST FESTIVAL

The Diggers Club's Heronswood Harvest Festival returns, at the home of heirloom seeds. Wander the grounds of Heronswood Historic House and Gardens, where you'll enjoy free mini garden workshops, garden tours and can take part in The Diggers Club's famous heirloom tomato taste test. Book in for a masterclass with father and son duo Dr Pietro Demaio and Dr Sandro Demaio, who will talk food and family and the timeless Italian techniques to preserve the bounty from your garden. WHERE: Heronswood, 105 Latrobe Pde, Dromana, Vic

TOMATO FESTIVAL SYDNEY

DETAILS: diggers.com.au/whats-on/

WHEN: Saturday, February 29

& Sunday, March 1

The Tomato Festival Sydney is back for its seventh year at the Royal Botanic Gardens Sydney – a must-do for

tomato lovers with free family friendly activities all weekend. There's also a range of ticketed events, such as a Longest Lunch and The Diggers Club hosted workshop, featuring Clive Blazey of Diggers.

WHERE: Royal Botanic Gardens Sydney

WHEN: February 15-16

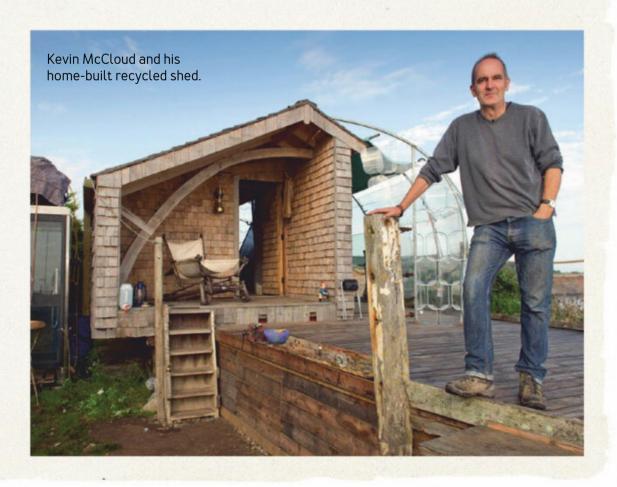
DETAILS: rbgsyd.nsw.gov.au/whatson/

Tomato-Festival-2020

KEVIN McCLOUD LIVE

Host of Grand Designs, writer, environmentalist, amateur balloonist and storyteller: Kevin McCloud is all that and more. Now he is in Australia for a live theatre event: The World According to Kevin. He will entertain with stories from the past 20 years as host of Grand Designs, as well as digging into his own past in an

entertaining survey of 1960s wallpaper, the space program, McMansions, community and the planet. For a taste of what you can expect, go to page 72. **DETAILS:** kevinmccloudlive.com.au



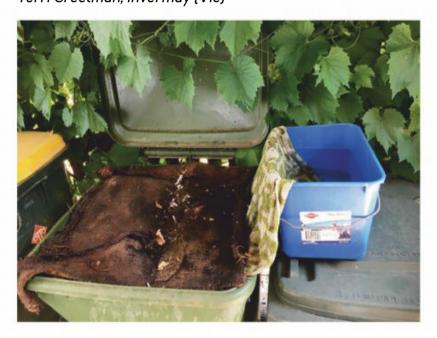
mail

SAVING WORM FARMS

Thanks so much for your magazine. We have been gardening for around 40 years but still find we learn something each issue and I continue to find better ways to make things work for us in the garden.

Just wanted to share this one with you. I LOVE my worm farm but we do find the hot weather a problem (we live just outside of Ballarat – think extremes!) with the worms often going down, seeking a cool refuge and then drowning in the liquid collecting basin below. So, this summer I thought I'd utilise the 'Coolgardie safe' method, putting an old towel into a bucket of water and then under the hessian bag on the top of the farm. I always keep the lid open, otherwise they really cook! This has worked a treat. Worms are thriving. The liquid drips through nicely giving me great worm wee and very few of them end up drowning. I'm sure other folk have thought of this, too, but I've never seen it reported.

The beaut thing about gardeners is how they share seeds, cuttings and ideas, so thought I'd do just that. Keep up the great work! Terri Creelman, Invermay (Vic)



Above: Terri has adapted the old Coolgardie safe idea, covering a box with wet hessian.



PLEASE INCLUDE YOUR TOWN/SUBURB. PHOTOS ARE HELPFUL, AND ANY DETAILS

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You and your



Donna is very busy @thehomegarden, growing all sorts of goodness in her backyard, including these beautiful pomegranate flowers. "I am a teacher and mum of three and have had a love of gardening ever since I can remember! I love that gardening is something universally shared by all and a great way to connect with people from all walks of life."



Visit Monique @_welcometomygarden_ and you'll see the results of someone who loves gardening. "Although we started with mostly ornamentals our garden is now full of fruits, vegies, flowers and herbs. My favourite thing to grow is fruit – probably for the sweet reward! Blueberries were the first edible I ever grew. My husband bought me a potted blueberry which is now absolutely thriving seven years later."

FOLLOW AND TAG US ON INSTAGRAM

@organicgardenermag to be featured here.

Trusting organics

Australian Organic Ltd has been around for more than 30 years, advocating on behalf of the organic industry, while educating consumers about the benefits of buying certified organic produce.

stablished in 1987 as the Biological Farmers of Australia, Australian Organic Ltd (AOL) has been a major force in ensuring organic standards remain robust and are in line with global export markets. It has also played a key role in the education of consumers as to the benefit of ensuring the products they purchase are certified organic. Using the 'bud' logo, which identifies products that have undergone an independent certification process, AOL has provided consumers with a tool that helps them make educated choices.

"Australia was one of the first countries outside of the EU to develop an organic standard launched in 1992," explains AOL CEO, Niki Ford. "The industry has developed over the years into what is now a \$2.6 billion industry."

This growth is expected to continue as more consumers demand to know what's in their food and other household products.

"Provenance has become significantly important; the organic standard demands compliance and delivers a complete traceability system," Ford explains. "With health issues

becoming more apparent, more than two thirds of organic consumers see organic as a trusted option for them and their family."



Since the term 'organic' is not regulated in Australia, any brand or product can use the term organic on their labelling, even if the product has just 1 per cent of organic ingredients. Therefore, choosing products with a certification logo guarantees that you are purchasing something that is truly organic, where the brand or business has committed to strict standards throughout the production process.



Clockwise from left: Yangarra Estate Vineyard is an organic/ biodynamic vineyard in the McLaren Vale region in SA led by Peter Fraser (pictured) - the 2016 Yangarra Estate Vineyard High Sands Grenache was the 2020 James Halliday Wine Companion Wine of The Year; AOL bud logo; Peninsula Fresh Organics in Baxter, Mornington Peninsula, sells its produce at its farmgate stall.

By buying certified organic, you are choosing products that are produced using environmentally friendly, biodiversity-friendly methods. Animals are free to range, pasture fed, with no growth hormones or antibiotics, and fruit and vegetables are grown without the use of synthetic pesticides, herbicides, insecticides.

Buying certified organic products also means that you are supporting certified organic farmers, manufacturers, retailers, businesses – of which there were 4,802 in Australia in 2018.

For more information visit: austorganic.com

Choose the planet

PRODUCTS THAT ARE PART OF THE SOLUTION.

Just say no to plastic

Reducing all the plastic in our lives can be challenging but this handy cutlery pouch from Seed & Sprout will help. With nine pieces of stainless-steel cutlery, all neatly stored in an organic cotton pouch, this set makes ditching all things plastic that little bit easier.

Available from seedsprout.com.au for \$39.

Plant the best beetroot

It's time to start planting beetroot but you can't decide what variety? The Diggers Club beetroot heirloom mix solves the problem. It includes Chioggia, Globe, Golden and White Plantages (the letter is

and White Blankoma (the latter is non-staining and tastes as good as red varieties). And remember the different coloured leaves will make a great addition to salads or stir-fries. \$3.95 per packet from diggers.com.au.





Soak it all up

Healthy soil is key to a healthy garden, helping with retention of moisture, minimising water wastage with less run-off and encouraging effective microbial activity. When dealing with drought and other extremes, soil can take a health hit and need a top up. That's where Seasol's Super Soil Wetter and Conditioner and the Seasol Liquid Compost come in — both are filled with goodness to help revitalise soil and increase water efficiency. Visit seasol.com.au.



SEED & SPROUT



a soapy solution

What happens when you mix together handcrafted virgin coconut oil with a company that gives back 100 per cent of the profits from the sale of their product to the villages that make the oil? You get a soap product that can make a difference. The Niulife soaps are not only cleansing and moisturising but they are made from ingredients that are 100 per cent certified organic and sourced from ethical, family-owned producers that give back to their local communities. So lather up at your leisure. Visit niulife.com.au for more details and stockists.



Fresh from the olive grove

Mount Zero Olives is a family-owned olive grove located on the northern edge of the Grampians National Park in Victoria. With a commitment to flavour, sustainable farming and a passion for quality ingredients, Mount Zero produces a range of products, including the 2019 Organic Extra Virgin Olive Oil which is cold pressed from Australian grown Frantoio and Manzanilla olives. These classic varieties produce a balanced oil with a herbaceous aroma, subtle almond and walnut notes and a peppery finish. A great all-rounder for liberal lashings on salads, meats and vegetables. Visit mountzeroolives.com.



Wicking Garden beds:

solution to the drought or waterlogged nightmares?

For every success story of a thriving wicking garden bed, you will find equal amounts of nightmarish stories of waterlogged messes, stunted plants and smelly growing containers. Yes, wicking garden beds are becoming more and more popular in Australia, and it seems that everywhere you look in the gardening world there are businesses that can sell you a wicking garden bed. Online bloggers claim to solve the drought problem with wicking beds. They promise that 'plants will water themselves' if you follow their simple 'how-to guide'. Unfortunately what nobody is talking about are the many messy pitfalls of wicking gardens that are sloppy, costly and time consuming if not done correctly. Nobody is talking about how they could end up reducing your growing season or that unless you use the right materials, you might find yourself digging out the soil and rebuilding the wicking bed many times



over trying to find a water leakage. And worst of all, nobody is talking about the harmful plastic chemicals that leach into your homegrown food slowly poisoning you.

So, are wicking beds bad? No, absolutely not. They are the best way to grow food in a container, the most water efficient and the least work intensive. The critical elements about them, though, are that they need to be correctly designed and built with the right materials. In

'The Secrets of Wicking Gardening' book, author Marco Baretta has summarised his experience of over a decade of building and maintaining wicking garden beds. As the owner of ModBOX raised garden beds, he has unique hands-on experience building thousands of wicking garden beds for Australian homeowners as well as reinvigorating the lost passion of disgruntled gardeners after disheartening experiences with a self-built wicking garden bed.



'The Secrets of Wicking Gardening' contains everything you need to know to build and maintain a self-watering garden bed. Read the guide and you will discover:

- How to avoid the 4 wicking garden bed rip-offs
- 3 costly misconceptions about wicking garden beds
- 8 common mistakes of building a wicking garden bed
- 5 steps to a healthy and productive wicking garden bed
- The perfect wicking garden soil mix formula
- ...and much more...

3 easy ways to request your FREE copy of 'The Secrets of Wicking Gardening':





) **PHONE:** 03 5979 4777



SEND TO:

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Please send a FREE	copy of 'The Secrets of
Wicking Gardening'	to the following address:

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Mrs/Ms/Miss/Mr/Other

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Email

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testimonials

...the wicking beds are doing fabulously and I can't wait to get some more...

Anne M. - Corinda, QLD

...I've got to say, I'm so impressed with the high quality of the materials, and I put it all together in no time at all...

★★★★★ Graham K. - Hawthorn, VIC

... thank you for taking the time to speak to my builder this morning. All done. I am thrilled. I think it's perfect. Thank you for going to so much trouble to ensure it was perfect.

Celia L. - Neutral Bay, NSW

MAKE A SPLASH!

SETTING UP YOUR OWN EDIBLE WATER GARDEN WILL NOT ONLY HELP KEEP THE SPACE COOL, IT WILL ADD NEW FLAVOURS TO SALADS, WRITES KAREN SUTHERLAND.



PHOTO: KAREN SUTHERLAND

ost gardeners can find space for a water garden, whether it's in a pond, an old bathtub, trough or a large glazed pot (with no hole in the bottom). Usually water plants are grown in pots, which are then immersed in water. Unlike other potted plants, they don't need to be watered, just make sure to keep the water topped up in the pond, bath or other container.

Summer is the perfect time to look for and pot up these plants. Choose a pot to fit the size of your bigger container and use a sandy loam soil from your garden or a garden centre to fill the pot. Potting mix doesn't work because it tends to float away.

Add some well-rotted cow manure for nutrients at a rate of 1 part manure to 5 parts soil. Fill the pot and pack the soil around the roots of the plant quite firmly. Leave room at the top to cover the soil with 2cm of white washed sand, firmed in, and finish with 1–2 cm of pebbles or clean gravel over the surface. This helps to keep the soil in the pot. Submerge slowly.

In the pond

Water plants are classified according to what depth they like to grow in a pond, ranging from edge dwellers, or marginal, to being fully submerged. You may need to place rocks or bricks under the pots to get them into the right position, and keep them straight. Larger ponds will require a range of plants

In a larger pond, consider adding fish to eat mosquito wrigglers.

to maintain water quality and health, so consult your local nursery or a good book for help.

In a larger pond, consider adding native fish to eat mosquito wrigglers. If you don't add fish, frogs and their tadpoles may move in and they too will control mosquito larvae. Alternatively, use a small solar pump to keep water circulating and agitating the surface, preventing mosquitoes from laying their eggs. You'll find pumps at your local garden and hardware centres – they are a more sustainable option than installing an outdoor power point.

Once a year, overhaul your edible water garden by emptying the water and accumulated sludge, adding it to the rest of your garden or compost. Re-pot any plants that have filled their pots, and put it all back together again, using rainwater rather than chlorinated water if you have fish.

Nearly all water plants have the potential to be weedy if they find their way into wetlands or waterways, so never dump them in these places or grow them nearby.

Here are four edible water plants to get you started.



BRAHMI

BACOPA MONNIERI

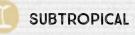




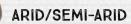


This ground-covering perennial plant with small glossy green leaves and small white flowers is a perfect edging plant in a pond. It can form a delicate cascade over the side of a pot. Brahmi is sometimes called water hyssop, not to be confused with other water hyssops: B. caroliniana and B. lanigera are weeds of waterways in Australia. Known as an Indian medicinal herb, brahmi is native to many parts of the world, including Australia. In Ayurvedic medicine it has been used for thousands of years to promote good memory, reduce anxiety, and to prevent fatigue. Add the bitter leaves to salads, mixing them with sweeter lettuces to soften the effect. Propagation is by cuttings.

CLIMATE ZONE KEY:











SUBTROPICAL ARID/SEMI-ARID WARM TEMPERATE COLD TEMPERATE









VIETNAMESE MINT

PERSICARIA ODORATA







Vietnamese mint will grow easily and quickly in warm weather into a lush looking plant near the edge or right into the middle of your container. Leaves release their refreshing aroma when brushed against in the garden. Use roughly torn leaves to add spicy interest to most South-East Asian style dishes, such as an Asian-style broth, noodle salad or rice paper rolls. Grow from division, or from cuttings in a glass of water on a windowsill, or even slips saved from bowls of pho at Vietnamese restaurants. It is happy grown in a pot but benefits from being divided before each growing season. Plants will last several years before needing replacing. Watch for scale on older or unhealthy plants.

FISH MINT (FISH LEAF, FISH PLANT, HEART LEAF) HOUTTUYNIA CORDATA









Often thought of as an ornamental, fish mint is a culinary herb with an unusual smell that people either love or despise! Being in the former camp, I enjoy fish mint chopped roughly and thrown over a Thai or Vietnamese inspired dish, where its fishy flavour gives an unexpected tang. Despite its warm climate origins, it has grown trouble free for years in my Melbourne aquaponics system, both the common green leaved form, as well as a psychedelic pink and yellow coloured version, which is also edible although less vigorous. Fish mint dies down in winter but emerges again in the warmer weather in my garden. It's grown easily from division, sending trailing stems from the pot when placed near the edge.

LEBANESE CRESS

APIUM NODIFLORUM









A permaculture survival plant, once planted it is generally reliable as a perennial salad green. Easily grown by division, even a rooted piece pulled out of the ground will grow on happily as a pond edge plant or in a pot in deeper water, or in an aquaponics system. This plant does spread if planted into the garden in a damp position, but is easily controlled by pulling out. Add roughly torn tender young leaves to salads for their earthy celery-like flavour and a nutrient boost. Plants will grow happily in full sun, but will tend to have tougher leaves and some shade will keep the leaves softer. My plants die down in winter in Melbourne but come back quickly in spring.



Clocking on with

ONIONS CAN BE DIFFICULT TO GROW BUT A DECENT BACKYARD PLOT CAN PROVIDE A YEAR'S WORTH OF THESE OFTEN LONG-STORING GEMS. LINDA COCKBURN EXPLAINS HOW TO DO IT - WITHOUT ENDING UP IN TEARS.

hey are growing like rockets and look healthy, lush and green as you wait for the plump, pungent bulbs. Alas, they poke up their heads, look all the world like a spring onion, and go straight to seed. Don't despair and don't blame it on the colour of your thumbs!

Failing to grow onions is not uncommon, but once you know the tricks, they're relatively easy and very rewarding. A harvest that will last a year is not impossible in a backyard.

When I first moved to Tassie, I struggled to grow onions. Everyone said they took up too much room and were cheaper to buy in the supermarket. But unless you are buying organic, you're supporting the use of a lot of chemicals that are not good for the soil or you. Onions are in the ground a long time. In non-organic production, the soil is typically nuked with preemergence weed killers and crops are sprayed with fungicides throughout the long maturing period.

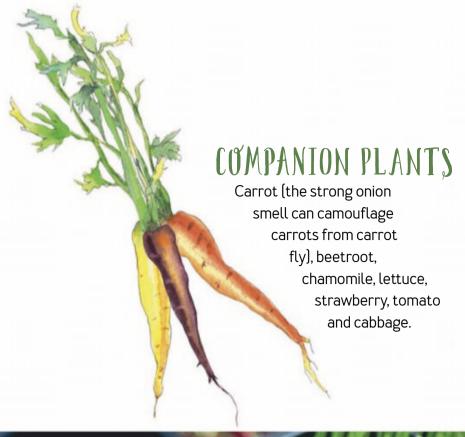
Timing

The trouble is, many of us grow the wrong type of onion for our climate, and at the wrong time. Onions that grow in Queensland are not going to grow well in Tasmania and vice versa. The thing is – onions have clocks!

There are short day, intermediate day and long day onions, requiring different levels of light and darkness. Once they have reached their optimum day-length level, they are triggered to form bulbs. If the level is not reached, they won't form bulbs.

There is conflicting information about day length for different varieties, so the following is a rough guide.

- Short-day length varieties require 10–12 hours of sunlight these are grown north of 35° latitude, which includes Perth, Adelaide and Sydney and just takes in Canberra (35° S). Planting starts in February through until May and harvest starts in September.
- Intermediate-day length requires 13–14 hours of sunlight and are best suited to Tasmania, Victoria and Southern areas of Western Australia, NSW and South Australia. Planting is from May to August for a late November to March harvest. In Tassie, I sow seed in trays in June/July, plant out in September and harvest in late January.
- Long-day length varieties require 14–16 hours of sunlight south of 38°, which really only includes Tassie and islands south of Melbourne. Growing long-day onions in an intermediate area may reduce the size of the bulb, not eliminate it.







ONION TYPES

There are four major types of onions based on colour, flavour and cooking uses

RED ONIONS

These salad onions have several layers of red skin before reaching white, sometimes pink/red-ringed flesh. Mildly flavoured and comparably sweeter than most other onions they're ideal for eating on sandwiches and in salads, but when cooked are similar to brown and white onions (and they lose most of their colour). Their higher sugar content and less pungent qualities mean they don't store well. Generally, eat within three months of harvest.

WHITE ONIONS

Similar to red onions in use, but with thinner skins and are a little more pungent. They can be eaten raw in salads and sandwiches or cooked. They have varying storage qualities, but usually not long-storing.

BROWN ONIONS

More pungent and loaded with sulphur, which keeps them from going mouldy but makes you cry. They're used for cooking and are rarely eaten raw (Tony Abbott was an exception). Typically good for longer storage. In cool Tasmania, we're able to store and eat them for eight months. Once they start to soften or bolt we cook and jar them as caramelised onions and they'll keep us going until the next crop is ready.

SWEET ONIONS

This is a fourth variety based on flavour rather than colour. They are sweeter and less astringent than other onions, have a higher moisture content and less sulphur, making them short keepers (store in fridge). They can be used raw or cooked. They often have a flattened shape such as the small 'Vidalia' or 'Cippolini' onions (both wonderful roasted and caramelised in their own sugars) or are enormous like 'Walla Walla' and 'Ailsa Craig', which can reach 1.5kg.

Sowing onion seed

While direct sowing onion seed is possible, it's not preferable. On average they're growing for 5–8 months. If you're sowing them direct, that means fiddly weeding for an extensive period of time, and onions do not like weed competition. You may also want to maximise the time in which other crops can be grown in the same space.

Sowing them in trays allows greater control over their growing environment and zero weeding for 2–3 months until you plant them out at around 20cm high.

Onion seeds are small. Sow thinly over a tray so they have room to develop strong root systems. I use 8cm deep trays. Press the seed lightly into seed raising mix

Top: Sowing onion seeds in trays gives greater control. Left: Plant onions 15cm apart, in rows 15cm apart.







Above: 'Australian Brown' onions store seven months. Right: 'Ailsa Craig' can reach up to 1.5kg.

KNOW YOUR ONIONS

CULTIVAR	DAY LENGTH	STORAGE QUALITIES	DAYS TO HARVEST	SIZE AND FLAVOUR
BROWN ONIONS			TE STATE OF	THE RESERVE OF THE PARTY OF THE
'NZ Creamgold' (Pukekohe)	intermediate/long	8–10 months	195–225	Medium size; pungent flavour. Reliable producer.
'Gladalan Brown'	short/intermediate	6 months	130	Medium size; mild flavour. Good cooking onion.
'Brown Cippolini' (sweet)	short	2–3 months	100	Small, flat approximately 8cm in diameter.
'Australian Brown'	intermediate	7 months	105–125	Large, firm with thick skin.
WHITE ONIONS			THE PARTY	10000000000000000000000000000000000000
'Early Lockyer White'	short	3–4 months	165–195	Medium size; pungent flavour for a white onion.
'Early White Grano'	short	1–2 months	100	Medium size; suitable raw or cooked.
'White Cippolini (sweet)	short	2–3 months	100	Small, flat and sweet.
'White Crystal'	long	2–4 months	95	Small; good pickling onion.
RED ONIONS				
'Long Red Tropea'	intermediate	3 months	180–240	Mild, sweet flavour; eat raw or grilled.
'Red Creole'	short	6–7 months	110	Stronger flavour, pungent and spicy.
'Red Shine'	intermediate/long	6 months	195–225	Medium red globe; mild flavour.
'Red Burgundy'	short	5 months	100–165	Large, flattened globe; mild, sweet.
'California Red'	intermediate	2–3 months	180–240	Mild, sweet
SWEET ONIONS				一种的人们的人们的人们的人们的人们的人们的人们的人们的人们的人们的人们的人们的人们的
'Walla Walla'	intermediate/long	1 month	120	Large, up to 1.5kg. Great for onion rings and slicing.
'Ailsa Craig'	intermediate/long	1 month	120	Large, up to 1.5kg. Great for onion rings and slicing.
'White Spanish'	intermediate/long	2 months	110	Large; mild flavoured. Good for soups and salads.



Saving onion seed

Onions are insect pollinated and will cross-pollinate readily. They require an isolation distance of approximately 1.6km to ensure seed purity, something that's hard to achieve in suburban areas. At least 50 onions must be grown in order to preserve genetic diversity within the strain.

Allow the seed heads to flower and dry on the plant, this will be the year after they were sown as they are biennial.

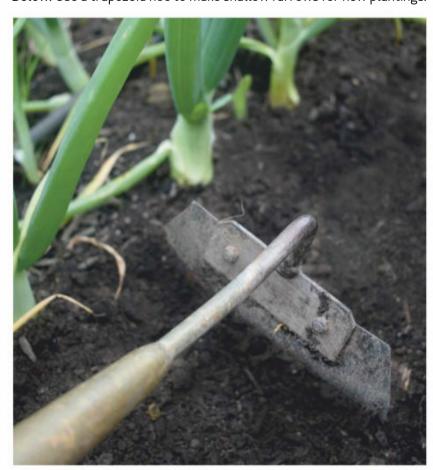
To release the seeds from the flowers bang the heads on the side of a bucket. Some varieties require rubbing the flower heads against wire mesh, such as a strainer, to release seeds. Winnow the seed to clean it by dropping the seed in front of a fan and having a tray beneath to capture the heavier seed while the seed coat is lighter and blows away. Allow to dry further in a cool dry place before sealing in a bag and storing away from light and moisture.

and cover with a fine layer and gently water in. Keep them moist and they should germinate within a fortnight. If you're sowing in winter months, you may need to find a warm spot inside, the top of the fridge is good, or a cold frame outside. While they're not as fussy as some seeds about soil warmth, they will germinate much faster at 20°C. Generally 2–3 weeks.

Preparing the beds

While the seedlings are growing, prepare their final bed. Onions prefer a neutral pH and are heavy feeders, but don't go too hard on the nitrogen as you will likely get more leaf than bulb and it reduces their storage qualities.

Below: Use a trapezoid hoe to make shallow furrows for new plantings.



Using the 'stale seed bed method' you can eliminate a lot of weeding. Prepare your bed as normal, then water, encouraging weeds to poke their heads up. Then use a blade-like tool, such as a trapezoid hoe to lightly scrape the soil surface and behead them. Try not to turn over more than the top 2–3cm of soil. Repeat this over a few weeks. It takes only a few minutes each time and eventually you deplete the weed seed bank in your soil.

Planting out

Using my trapezoid hoe, I draw out shallow furrows 15cm apart and space onions 15cm apart within the row. Placing them this closely will reduce the weed load once they're mature. It does mean staying on top of weeds early on. I lay seedlings on the side of the furrow and then close it over the base, but not the stem of the plant. They usually 'stand up' within a week.

I weed by disrupting the top 2cm of soil once a week with my hands until onions are well established. My partner says I 'massage' the soil.

Once established, add a light mulch to reduce further weed growth and conserve water. Onions are thirsty, so don't skimp on the water, but don't waterlog.

PEST AND DISEASES

ONION APHID This aphid can quickly proliferate and kill onions. They're attracted to the smell of onions, so interplanting with other strong-smelling herbs confuses these pests. Ladybirds, hoverflies, lacewings and parasitic wasps are their natural enemies.

TREATMENT: White oil, rosemary oil and chilli sprays. Be sure to spray so the liquid drips down to where the aphids shelter in leaf joints. To make white oil spray: take an empty jar, pour in a cup of ordinary cooking oil and ¼ cup of dishwashing liquid. Give it a good shake; you'll see it turn white. This is your concentrate. Dilute before use by adding one tablespoon to a litre of water.

NEMATODES These microscopic roundworms are usually well-behaved and chomp on microbes, but some species prefer plants. Damage is usually in the stem and bulb. If your onions are stunted and yellowing, pull one up and cut across the bulb, there may be brown rings or galls on the roots, like small tumours.

TREATMENT: Prevention is key. Crop rotation – don't grow members of the onion family in the same bed more than once every three years. A healthy, rich soil full of organic matter encourages beneficial species. Growing a cover crop of mustard produces isothiocyanates, a natural soil fumigant. Burn any affected plant material to avoid reinfestations.

THRIPS Less than 1.5mm in length, these hard to identify, sap-sucking insects hide out in leaf folds. They breed prolifically during hot weather and can rapidly reduce the health of your onions.

TREATMENT: Keep nitrogen sources steady over the growing season, mulch heavily (which encourages predators and creates a barrier for the pupa in the soil). Hosing them off regularly can assist. Use a spinosadbased organic insecticide as a last resort.

DOWNY MILDEW A grayish, cottony looking fungus that grows on the underside of leaves with a dappled yellow colouration on the leaf top. The fungus overwinters in the soil and on leaf matter.

TREATMENT: Avoid overhead watering, use a soaker or dripper hose. Space plants for good airflow. Remove and destroy any heavily affected plants and all plant material at season end. Organic copper sprays can be used.



Above: Downy mildew is a grayish, cottony looking fungus.

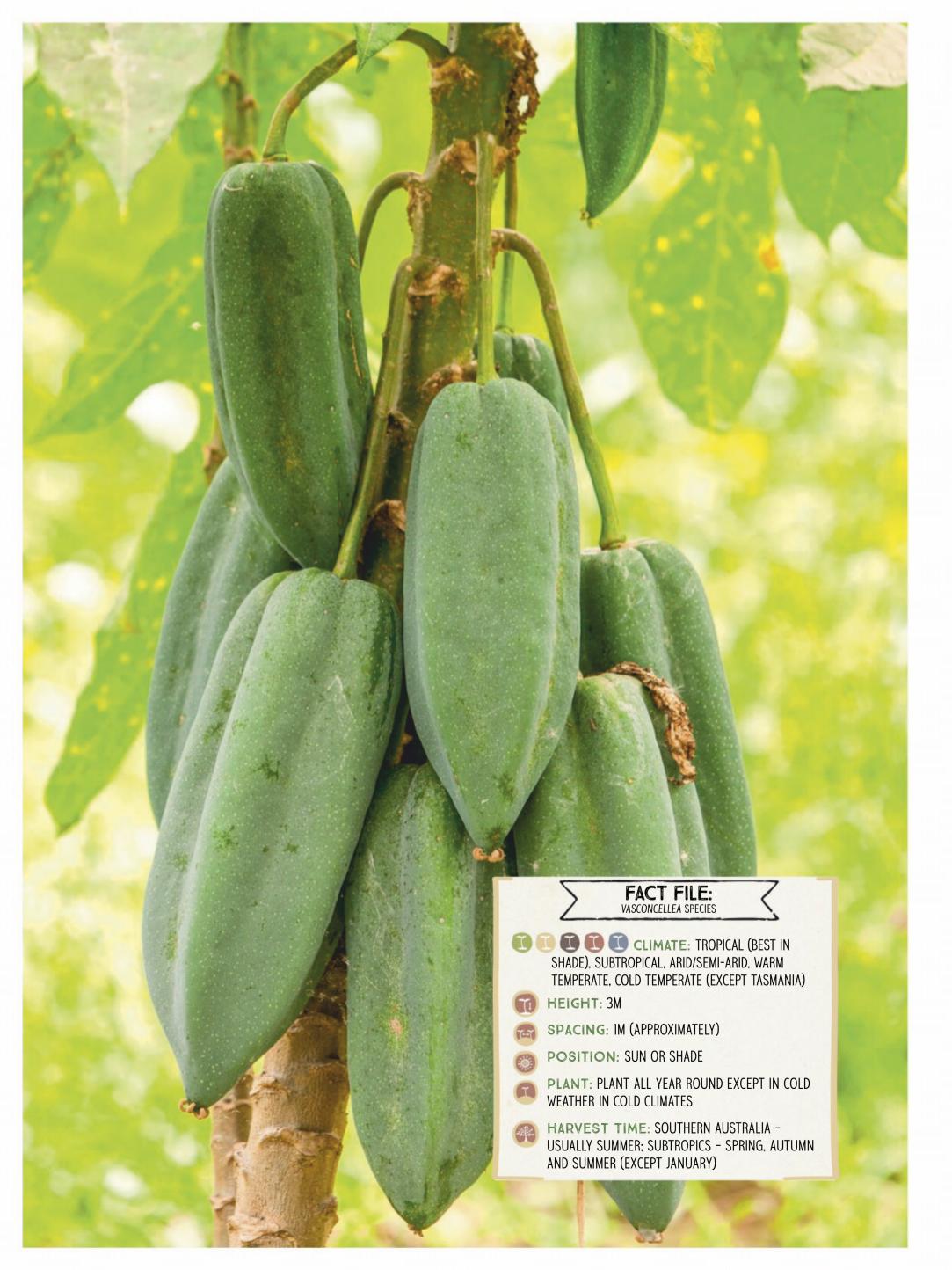


HARVEST AND STORAGE

When the tops start to die back (turn yellow/brown) bend the leaves down to speed up maturation, (pictured top). Once the greenery is limp, pull the onions up and leave them on top of the soil for 2–3 days (pictured above), then move to a warm, dry place to complete the curing process – normally a couple of weeks. If it's likely to rain or be very hot, don't leave them in the garden, move directly to a warm dry place. Handle with care as any bruising will reduce their longevity.

Store them in a cool, well-ventilated area, but not with potatoes, apples or pears as the ethylene they produce may break the onion's dormancy. Plaiting and hanging saves space. Laying onions singularly on wire mesh trays will reduce the likelihood of mould. If storing red or white onions in the fridge, never use a plastic bag.

If onions start to bolt during storage, I chop them up and caramelise them — they'll last several weeks in the fridge in a covered bowl. Otherwise, we preserve them in jars and use as we would fresh onions until the next harvest.





A bite of champagne

KAREN SUTHERLAND LOVES BABACO - AN EASILY-GROWN EVERGREEN FRUIT THAT HAS A DELICIOUSLY FIZZY FLAVOUR THAT'S PERFECT FOR SUMMERY DRINKS.

abaco, also known as mountain or highland pawpaw, is a naturally occurring hybrid of two Vasconcellea species from Ecuador that grow there at altitudes of 2000–3000m.

In Ecuador, and other parts of South America, it is enjoyed in juices, but its lemony-fizzy flavour also pairs well with salads or fruit salads and gives rise to its other name: champagne fruit.

Babaco, Vasconcellea x heilborneii (syn. Carica *pentagona*), is a perfect choice for busy food gardeners or those with shady gardens, where it can be used to fill narrow, shady spots where not much else will grow. As a bonus, babaco is an exotic looking plant with lush leaves and abundant yellow fruits that does well in large pots. It resembles its warm climate cousin the pawpaw, but thrives in most climates (although it needs protection from frost).

Growing needs

Like many soft-leaved South American fruiting plants, it doesn't like extreme heat and prefers good humidity levels, so will grow well amongst other plants in your garden. Babacos are self-pollinating so you only need one to get fruit. Plants will last 5–7 years and it takes only two years or so to fruit.

If unpruned, babacos will grow to 3m high and 60cm wide in three years. If pruned to control their height, they will branch and become wider. Plants can be grown in full sun in southern Australia but need shade in tropics. Babacos do not have high water or nutrient requirements, but do need good drainage and benefit from a top dressing of organic fertiliser in spring.

Propagation

Babacos have a fibrous rather than woody trunk, which makes mature specimens prone to being snapped off in high winds. If this happens, just tidy up the plant and make some new ones from the offcuts. Cut pieces of branch at least 25cm long with the diameter of a 20 cent piece. Remove the larger leaves, retaining only the shoot and small leaves at the tip of the cutting. Cuttings without a shoot on the tip usually won't grow. Cuttings can also be taken from the main stem when cutting back the plant or from side shoots the plant has formed. Take cuttings in warmer weather.

Push them into potting mix in a pot or straight into the ground. Water and keep just moist. Fruits form throughout the year, making it hard to find a time to prune your plant or take cuttings, as you'll nearly always have to sacrifice some flowers or small fruits to do so.

Harvesting

The large fruits can hang on the plant for nine months before ripening, usually in summer. Remove the yellow skin to eat the soft juicy flesh inside. A thick slice of babaco has as much vitamin C as an orange. Unripe green babacos can be cooked into curries or chutneys. Combine babacos with bananas for a refreshing smoothie – my favourite way to enjoy this fruit!

SELECTED SUPPLIERS

Babaco plants are available from specialist nurseries around Australia. Also, diggers.com.au and dayleysfruit.com.au (although they don't send to WA).



for the ages

YOU DON'T HAVE TO LIVE IN THE MEDITERRANEAN TO GROW AND APPRECIATE OLIVE TREES, WRITES PENNY WOODWARD - THEY HAVE MANY WONDERS, FROM FRUIT AND OIL TO SHADE AND HEDGING.

🏲 he olive (O*lea europaea*) is an ancient plant that has been in cultivation for more than 7000 years. It is native to Italy, and the Mediterranean Basin more widely, where pollen records have shown that olives were part of the original flora of the region.

These medium-sized trees with slender trunks and grey green leathery leaves are drought and heat tolerant once established and can commonly live for hundreds of years. There are some trees that have been carbon dated to over 2000 years old. It's estimated that there are more than 800 million olive trees in cultivation around the world.

Olive trees are grown for their fruit, oil, leaves and wood, but also make excellent smaller shade trees, grow beautifully as hedges, are easily shaped into espaliers, thrive in pots and can even be grown inside (although they never look as good as when they're grown outside!).

In ancient civilisations, an olive branch was seen as a symbol of abundance, glory and peace. Branches were used to crown victors of both competitions and wars, and olive oil is still used today in many religious ceremonies. Olive trees, the fruit and the oil are all mentioned in both the Bible and the Quran.

There are numerous references to olives in literature but one of my favourites is from Lawrence Durrell who wrote that the whole of the Mediterranean "...seems to rise in the sour, pungent taste of these black olives between the teeth. A taste older than meat, older than wine."

Best climate

Coming originally from the Mediterranean, it's no surprise that olive trees thrive in a climate of long, hot, dry summers, cold, wet winters and an early spring. Nevertheless, they grow from Tasmania to the subtropics, but are more prone to disease the more humid the weather gets. While fruit set depends on some cold (200 chill hours), really severe frost will kill trees, especially young ones. It's important to plant cultivars that are suited to your climate.

Olive trees are for sale in most nurseries, but are also available by mail order (see suppliers list on p. 34). Some are better for oil production, some for their fruit, and quite a few are good all-rounders. Similarly, some will self-pollinate, others need a pollinator. Olives are wind-pollinated, so growing more than one tree will increase production (see the table on p. 33).

Left: Olive trees are both drought and heat tolerant once they are established and can live for hundreds of years.



Planting and growing

Soils must be well-drained, but these trees are otherwise not fussy, growing readily on low-nutrient soils. However, production will be much better if the soil is higher in organic matter with some added nutrients to get them started. Even though they will survive with little water, fruit will be fatter and more succulent if trees are regularly watered during fruit set and growth in autumn and early winter. Olives also prefer alkaline soils, so add lime if your soils are acid.

Once you have bought your tree, water it well with dilute seaweed extract. Choose a position with good sunlight (for six hours a day) and dig some compost and well rotted manure into the soil – this is for organic matter rather than nutrients. Then dig a hole, plant the tree (so the plant's soil level matches your garden spot), backfill with the prepared soil, then water again with dilute seaweed extract, which minimises transplant shock.

If it's a windy position, tether with two stakes, using soft ties from the trunk to each stake. If you are planting more than one tree, for peak production the trees need to be 5m apart. You can plant closer together, but the harvest per tree will be smaller.

If you are planting into a pot, you will need a big one of about 220L and good-quality potting mix. Add some compost and well-rotted manure to this, too. Fill the bottom fifth with coarse gravel to ensure really good drainage. Olives grown in pots are less productive than those grown in the ground, but still well worth growing.

After planting and watering, either in the ground or in a pot, mulch the surface of the soil with a loose mulch that allows water infiltration. Water regularly until established. Feed trees sparingly in early spring with compost, manures, pelletised organic fertiliser or worm castings. Do the same after harvest, but never overdo the fertiliser. Always make sure the soil is moist before adding and water afterwards. Trees eventually establish deep, anchoring roots that make them wind and drought tolerant.

Pruning

Don't do any major pruning of young trees for the first few years. However, for all trees in winter, remove any suckers and dead branches and prune off lower branches to allow air movement around the base. Any time of year prune back branches that are too long or growing in the wrong direction. Fruit is produced on one-year-old growth, so pruning too hard will reduce your harvest the following year. Once trees are 2–3 years old and well established, prune to a single trunk with a framework of 5–7 main branches. Then prune every winter, mainly thinning the canopy and not cutting off too many fruit-bearing tips.

Harvesting

Olives flower and start forming fruit during spring and early summer, and are generally harvested from autumn to early winter. Trees may take 2-4 years before first harvest and won't reach full production until about nine years old.

Fruit can be harvested at three stages, and the timing can depend on the cultivar being grown, whether they





Once trees are fully mature they can produce about 50kg of fruit each year. Production often works on a two-year cycle with a big crop, followed by a smaller crop the next year.

Clockwise from top left: An olive orchard; ancient olive tree like this one could be over a thousand years old; harvesting olives by hand; if planting in a pot you need a large one.









Top: The timing for harvesting olives depends on the cultivar and its use. Above: Fresh 'Manzanillo' olives.

are harvested for fruit or oil, and the preference of the gardener. See the table on the next page for tips.

- Green olives are picked when large and plump, but before they have started to change colour. They are still yellowy green in colour. Some cultivars can be quite ripe when green.
- Semi-ripe olives are picked early, when the colour is changing from green to various shades of red and brown. Generally only the skin has changed, the inside of the olive is still green.
- Black olives or ripe olives are fully mature and ripe. Their colours range from brown to purple and black. Many commercial black olives are actually bottled green, and then dyed black, generally with the addition of ferrous sulphate.

Once trees are fully mature they can produce about 50kg of fruit each year. Production often works on a two-year cycle with a big crop, followed by a smaller crop the next year. Unripe or just-ripe fruit need to be picked from the tree, while over-ripe olives will fall to the ground. Very ripe olives bruise easily so handle them with care.

Whether green or black, unripe or ripe, olives are bitter when harvested so they are never eaten fresh. They are processed by soaking in water, which is replaced every day for about 10 days. And then stored in brine, vinegar, oil or salt. Or a combination of these. Olives used for oil are pressed fresh, or put through a process with a centrifuge to extract the oil.

Pests and diseases

The native Australian olive lace bug sucks leaf sap from under the leaves gradually defoliating the tree. Control by spraying the underside of leaves with pest oil or soap spray. Scale also attacks leaves and stems and can be controlled by scraping off the scale and/or spraying with soap or pest oil. Organic pyrethrum sprays are also effective for these pests. Less common are caterpillars from the olive moth. Control these by squashing them or spraying with Bt (Bacillus thuringiensis).

Diseases include peacock leaf spot, which causes sooty blotches on leaves in winter, and anthracnose -both of which are less likely if there is good air movement around the trees, an open canopy and if trees are growing in well-drained soil. If this doesn't work, spray with an organically certified fungicide in early winter.

A disease is starting to affect ancient olive forests in Italy and France. No-one knows how it got there, but farmers and bureaucrats have not been able to stem the spread since before 2013. In some areas it is known as 'olive tree leprosy'. This disease is a bacterium called *Xylella fastidiosa* that is carried between trees by sucking insects. It affects a range of other crops, too, including grapes, citrus and coffee. It has been a problem in the US for a long time, but had not been seen in Europe before the 21st century. So far it has not made it to Australia. This re-emphasises the importance of not ever bringing







OLIVE CHOICES

NAME	POLLINATORS	GROWN FOR FRUIT/OIL	NOTES
'Arbequina'	Self-fertile but will cross- pollinate with 'Frantoio'.	Early season. Mainly for oil. Good for fruit, too. Harvested green for pickling.	Small trees to 4–5m. Adaptable to a wide range of climates.
'Coratina'	Better with cross pollination with 'Frantoio' and 'Picual'.	Early season. Oil and fruit. Pick either green or black for pickling.	High yielding. Adaptable to a wide range of climates. Erect habit. Trees to 8m.
'Correggiola'	Partly self-fertile but more fruit if 'Coratina' also grown.	Late season. Oil and fruit. Pick either green or black for pickling.	Old Tuscan cultivar. Peppery oil, cold-tolerant trees. Good for hedges, screening. Trees to 8m.
'Frantoio'	Self-fertile and known as a universal pollinator.	Late season. Mainly for oil but also fruit.	Aromatic peppery oil, nutty fruit. Trees to 8m. Cold tolerant.
'Kalamata'	Self-fertile but more fruit if 'Frantoio' also grown.	Fruit. Large, torpedo shaped, harvested black. Also used for oil.	Juicy, sweet, good for cooking and eating. Trees to 8m
'Manzanillo'	Self-fertile but more fruit if 'Arbequina' or 'Frantoio' also grown.	Oil and fruit. Pick either green or black for pickling.	Spanish cultivar, true dual use, trees to 5m. Low chill requirement, cold sensitive.
'Picual'	Self-fertile but more fruit if 'Arbequina' also grown.	Fruit. Mid season, pick when fully ripe and black. Also oil.	Spanish cultivar. Good for cold regions through to subtropical. Trees to 6m.
'Verdale' (South Australian)	Higher bearing with cross-pollination with 'Frantoio'.	Fruit and oil, but lower oil content than some others.	Good for cold regions. Trees to 8m.



OLIVES IN BRINE

5kg fresh olives (black or green), stalks removed 500g salt

6–8 lemons, sliced thickly Oregano sprigs

Place olives in a large container and fill with fresh water until olives are covered. Drain and change water every day, for 10–12 days. Drain olives and place in airtight containers interspersed with oregano sprigs and sliced lemons.

Make the brine by dissolving salt in enough water to completely cover olives (about 5L). Heat gently in a saucepan until all salt is dissolved. Pour over olives, oregano and lemon slices until they are covered and seal the containers. Leave in a cool, dry, dark position for about 2 months for black olives, and 3 months for green olives. At this point, taste an olive, if it is still bitter then leave for another week or two.



To purchase plants go to your local nursery. For online, try:

- www.australisplants.com/olives/index.htm
- www.dayleysfruit.com.au
- o diggers.com.au
- fruittreelane.com.au

For more information on olives, trees and cultivars.

- www.australisplants.com./olives/info/ oliveVarietySelection.pdf
- oliveaustralia.com.au/About_Olive_Trees/about_olive_ trees.html



Above: 'Manzanillo' olive blossoms.

any wood, leaves or fresh fruit into Australia. If you do inadvertently, declare it to customs.

Weeds

Olives are declared weeds in South Australia, and some other regions. With our drying climate they may become a more widespread problem. So if you are going to grow them for hedges, as shade trees or screens, then you need to prune off the flowers or fruit so that they can't be eaten by birds and spread into bushland.

Health benefits

Olives, the fruit and the extra virgin olive oil extracted from them, are high in oleic acid, which is a monounsaturated, omega-9 fat. Oleocanthal, a polyphenol, gives good olive oil its sharp taste. Olives also contain vitamins A and E as well as folate, and minerals calcium and magnesium. The phytochemicals betacarotene and lutein (both caretonoids) and reservatrol (polyphenol) and apigenin and querticin (both flavonoids) are also found in both olives and the oil. Many of these have anti-inflammatory and antioxidant effects that have been shown to aid in slowing dementia and cardiovascular disease, and preventing the development of type 2 diabetes.

Bulby

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GREEN your balcony

PLANT ENTHUSIAST JASON CHONGUE EXPANDS THE POSSIBILITIES FOR CREATING AN URBAN OASIS WITH HIS NEW BOOK GREEN: PLANTS FOR SMALL SPACES, INDOORS AND OUT. HERE, HE GIVES HIS STYLING TIPS FOR BALCONIES.

alconies are often neglected spaces, left bare for drying clothes. To me, they make the perfect small-space garden. Being literally at your doorstep, balconies make convenient canvases for growing both ornamental plants and edibles.

The key to balcony gardens is providing your plants with shelter. Balconies are extremely exposed, so tend to turn into wind tunnels, and receive a lot of extreme sunlight. But if you can break through these conditions, you'll have the perfect little oasis. Creating a balcony garden will make your home feel like a retreat.

When setting up your balcony garden, you'll want to consider space. The typical balcony has a limited floor area, and I would recommend saving some space for furniture so you can sit among your oasis.

Try anchoring the corners of your balcony with larger planters, then tier down from there. It's nice having some larger specimens that build height and shelter your interior from extreme weather. Balconies tend to lend themselves to arid or temperate plants, which have evolved to deal with wind and dryness, and there is a myriad of plants from the desert and the Mediterranean that work well.

Use the bones of your balcony to inspire your planting. Balcony balustrades are often ugly, but they make the perfect trellis for climbing plants or hanging planters. If you have a ceiling to work with, try hanging baskets of foliage that will eventually cascade to form a leafy wall.

Plants like succulents, citrus, olive, rosemary and many Australian natives are drought tolerant, making them great choices for a balcony. If your space is narrow, try growing African milk tree (*Euphorbia trigona*), San Pedro cactus (*Echinopsis pachanoi*) and espalier fruit trees. They can all be compact growers and make great tall plants for empty corners.



A HERITAGE BALCONY

Older balconies are imbued with layers of history, which can challenge you to use plants you might not have considered. This balcony incorporates plants such as geraniums, taking you back to a time when flowering plants were revered – a perfect pairing for this heritage building. The balcony embraces its exposed nature, using drought-tolerant plants. Incorporating plants both outdoors and in makes this narrow balcony feel larger, while also providing intimate pockets to sit and ponder.

LIGHT CONDITIONS

BALCONY: PART SUN/WELL LIT

INDOORS: PART SHADE/DAPPLED LIGHT

Pictured right: Planter box – Yucca, cranesbills (geranium), good luck palm (cordyline), foxtail agave (*Agave attenuata*). **Pots** – Egyptian starcluster (*Pentas lanceolata*), daisy (Argyranthemum).

Pictured below: Indoors – Devil's ivy (Epipremnum aureum), fruit salad plant (Monstera deliciosa), dumb cane (dieffenbachia), wax plant (hoya), peace lily (*Spathiphyllum*), tractor seat plant (*Ligularia reniformis*).





PHOTOS: ARMELLE HABIB





If floor space is at a premium in your home, try cultivating plants on windowsills and in planter boxes. This allows foliage to overflow without compromising on space. And don't be afraid of having your garden grow against windows. Doing so can make the perfect green escape.

In a monochromatic space, extend the neutral tones by using planters made from similar or natural materials. Using neutral tones will keep your space calm and avoid colours clashing.



AN APARTMENT BALCONY

With plenty of morning light, this balcony celebrates an arid aesthetic: one that would still thrive if underwatered or exposed to intense summer sun. The taller plants closest to the balustrade protect the smaller plants below. Small gardens are all about balance, achieved here with a mix of larger plants positioned at the corners and a series of smaller-scale pots and plants to soften the

edges. The cacti and aloe form rigid silhouettes, while the lamb's ear and spider plant add softness.

LIGHT CONDITIONS PART SUN/WELL LIT Pictured from left: Golden barrel cactus (Echinocactus grusonii), lamb's ear (Stachys byzantina), cacti, tree aloe (Aloidendron barberae), dragon tree (*Dracaena marginata*), spineless yucca (Yucca elephantipes), aloe, spider plant (Chlorophytum comosum), radiator plant (Peperomia obtusifolia). 🥨



This is an edited extract from *Green* by Jason Chonque (Hardie Grant Books, \$32.99); available in stores nationally.

Wall to wall GREEN

BUILDINGS WITH ROOFTOP GARDENS AND LIVING WALLS ARE PART OF A REVOLUTION TO REGREEN OUR CITIES AND HOMES AND BRING MORE NATURE INTO OUR LIVES. HELEN CUSHING TELLS HOW.

nce upon a time, rustic farmhouses with grassy sod roofs were the norm in parts of Europe. The sod was cut from the fields and laid on sheets of birch bark that had been peeled from forest trees when the sap flowed in spring and summer. The bark was water and soil proof, lasting for generations.

No nails were needed as the friction of bark on rough planks, weighed down by the sod, prevented sliding. Weighing around 250kg per square metre, the sod compressed the log structure, reducing drafts while insulating the building and supporting a thick layer of snow in winter. The cottages were part of the landscape, a human habitation that merged into the ecosystem and when time decreed, returned to the earth.

During the 19th century, industrial materials gradually superseded birch bark and sod until the idea of growing grass on your roof became a quaint memory from the primitive past. In the mid-20th century those in quest of a naturalistic lifestyle revived the sod roof but it remained a curiosity. A friend of mine built one 30 years ago, astonishingly meeting City of Hobart building regulations. Revisiting it this spring, I was charmed by the daffodils flowering in the long-haired grass and the memory of its inspired creation.

Fast forward to the high-tech 21st century and the Ford Motor Company's Michigan truck plant, built in 1917, is

in need of a makeover. Chairman Bill Ford, grandson of Henry, decided to balance business needs with ecological and social concerns. Using a German system, a fourhectare green roof was installed. The roof grows 15 plant species, reduces stormwater, insulates the building by 10° up in winter and 10° down in summer, provides a nesting site for birds and absorbs carbon dioxide while pumping out oxygen. In 2004 it was listed in the Guinness Book of World Records as the world's largest green roof.

The Ford green roof is part of the 'green buildings' revolution that has begun to take off in recent years around the world, including Australia, to bring plants, nature, oxygen and cooling to our increasingly hot cities. It extends to domestic green wall kits and vertical gardens (more on that later).

The green building revolution

'Living infrastructure' is the preferred name these days for what most of us would just call "plants on buildings". Alongside rooftops, vertical gardens are the other direction (pun intended) the living infrastructure innovators are refining and developing.

Ivy-clad walls, climbing roses, window boxes, espaliered fruit trees, just like sod roofs, have for centuries graced buildings both grand and humble. But the new wave is going further, adopting the idea of 'biophilia'.



Clockwise from left: The massive One Central Park in Sydney; the green carpark in Manly Vale, Sydney; a rooftop garden at Burnley University, Melbourne.

In his book *Nature by Design*, the late Yale professor Stephen Kellert, describes biophilia as "the inherent affinity people have for the natural world".

Whereas previously such a theory may have been an unstated and accepted part of life, our biologically lonely concrete jungles are increasingly separating us from nature. Recognition that this is not good for us, that it is making us sick and unhappy (and therefore is not good for productivity) is propelling the living infrastructure boom. Just as technology made the concrete jungle possible, so technology is enabling the greening of that concrete.

Sydney's sky jungle

Sydney boasts one of the world's tallest vertical gardens, award-winning One Central Park, a 150m high oasis in the desert surrounding Central Station. The planting design is by renowned French botanist and artist Patrick Blanc, an original proponent of vertical gardens. Inspired by the ability of plants to grow naturally without soil on vertical surfaces such as trees and rocks, Blanc developed a felt-based growing system to bring the lush fecundity of nature into barren cityscapes.

One Central Park uses some 250 plant species, mainly Australian, many found on cliff faces in the Blue

Mountains, west of Sydney. Blanc's ambitious vision to evoke this natural experience in the centre of Sydney was a challenge to install, but from 2012–14 Sydney company Junglefy took it on, developing world-first installation methods to 'plant' the 1120 square metres of garden.

"One Central Park was the first of its scale, globally," says Junglefy founder Jock Gammon.

"It disproved the naysayers."

A cascading tangle of ferns, vines, succulents, flowers, strap-leaved clumpers, and more, create a lush skyjungle in one of Sydney city's busiest streets for approximately 5,300 residents and 1,750 workers.

There are many pragmatic environmental and economic reasons to love this and other living infrastructure: shading and insulating building surfaces; cooling the surrounds through evapotranspiration and purifying the air by storing carbon dioxide; producing oxygen; removing toxins; and even 'harvesting' airborne particles. The latter is a heavy burden traditionally borne by street trees and parks.

The building complex also provides research opportunities for students across the road at the University of Technology Sydney. Projects include researching the biodiversity enhancement of the gardens, and the feasibility of anaerobic organic waste management in the city. The latter includes the abundant cuttings from the gardens and food waste from the numerous kitchens within the building.

Another excellent example of city greening is on a multistorey carpark in Sydney's Manly Vale, where Junglefy has used green walls to transform an ugly utilitarian structure on a busy road into something bright and beautiful.

Rooftop biodiversity

Leaving Sydney, let's return to rooftops. In Melbourne, the roof garden of Victoria's newly renovated Parliament House restores a patch of biodiversity to the CBD. Designed by Paul Thompson, a leading light in the use of indigenous plants in landscape design, the garden features drifts of native grasses, wildflowers and small shrubs, planted around a winding bluestone path.

The Burnley Campus of Melbourne University has installed three green roofs, one for research, one for demonstration, and a third for biodiversity, fostering animal life. Trials include different depths of growing media, irrigated and non-irrigated beds, the use of endemic species, and a wetland.

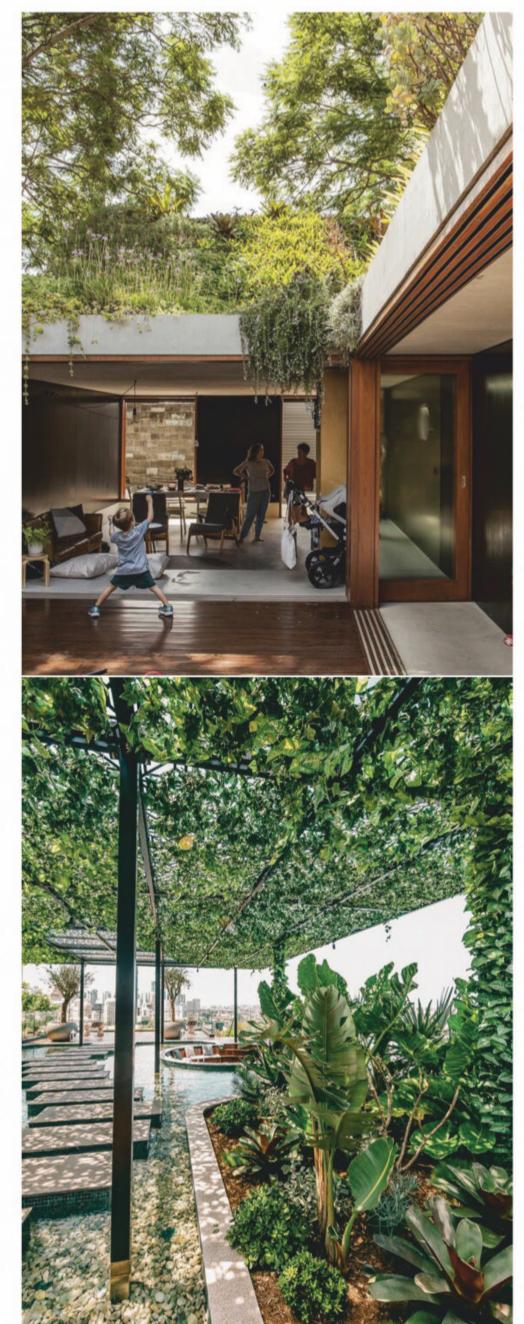
Until this century, rooftop gardens remained a novelty due to problems of weight and waterproofing. Mark Paul, horticulturalist and founder of The Greenwall Company, Australia's original living infrastructure innovator of over 30 years, developed a solution.

According to Paul, his lightweight modular system made up of what he calls ecoPillows, is "the solution architects, builders and designers have been looking for." Made from 94 per cent recycled inorganic local waste, they can be any shape or size. "They are not only adaptable but also sustainable," he explains. "Our plantings last the lifetime of the building."

They are also perfect for collecting drainage and stormwater run-off, as elegantly demonstrated in an award-winning renovation of a small inner-city family home. Architect Jon Jacka used ecoPillows in the stormwater system of a green roof in his retrofit of the Laneway House in Sydney's Newtown (see picture on page 40 and top right). An inner courtyard is enveloped in cascading vines and greenery, with the guttering transformed into ecoPillow gardens fringing a sloping green roof.

Paul's own house takes things a step further, integrating rainwater collection and a rooftop fishpond to create an ecological system including greenwalls, and a green roof.

> Top right: The Laneway House in Newtown. Right: Brisbane City Council's 'Buildings that Breathe' guidelines have encouraged rooftop gardens such as this at Oxley and Stirling.





Top: Gardens in the home of The Greenwall Company's Mark Paul. Above: The vertical garden in the Global Change Institute in Brisbane.

Walls that breathe

Air pollution is not only a street problem. Sick building syndrome (SBS) is prevalent in artificially lit and air-conditioned buildings which are generally outfitted with synthetic building and furnishing materials that quietly outgas fumes known as volatile organic compounds (VOCs).

We add to the problem by breathing out carbon dioxide, which builds up in our sealed offices. Fatigue, headaches, eye, nose and throat irritation, asthma and nausea are just some of symptoms. Indoor pot plants, like street trees, are often grown to purify and heal the air while soothing our suppressed primal, biophilic urges.

Going further, many buildings are incorporating green walls on both a small and large scale, with cascading plants greening atriums and courtyards.

Junglefy has developed an 'active breathing wall': a modular green wall system designed specifically to tackle poor indoor air quality. To the untrained eye it just looks like a lovely green wall, but hiding unseen is a small fan that draws the air through the growing medium and across plants at quite a rate.

The planting medium, which is high in coconut fibre, traps particles and VOCs while increasing carbon dioxide draw down by 80 per cent. The particles and VOCs are broken down by bacteria in the planting medium. The air comes out the other side of the wall oxygen-rich.

Additionally, the wall absorbs noise, humidifies the dehydrated air-conditioned atmosphere and reduces the need for air conditioning by up to 33 per cent.

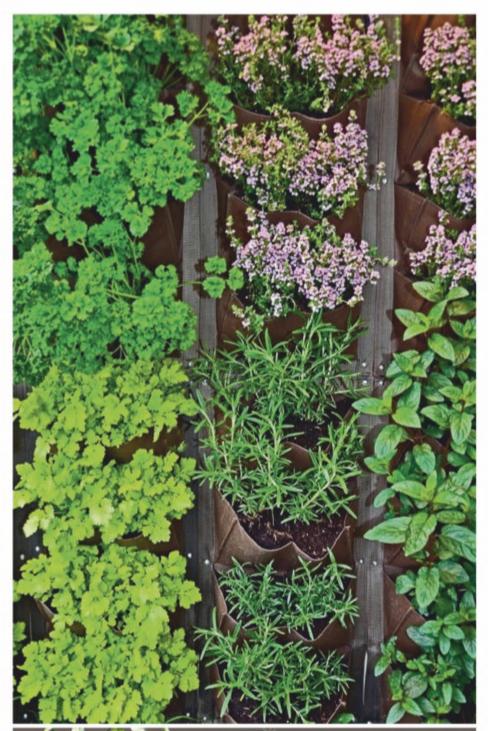
"The microbes are in a symbiotic relationship with the plants," says Junglefy's Jock Gammon.

"Both are needed for the breathing wall to survive. It's the bacteria, not the plants, that break down the VOCs and particles."

Perhaps the ultimate test of Junglefy's breathing wall is a new installation on Sydney's Eastern Distributor Motorway coming off the Harbour Bridge. Panels of bold plants have been installed in a world-first research collaboration backed by the NSW Government to determine the effectiveness of green walls in tackling air pollution.

Another significant project by The Greenwall Company is a green wall garden in the atrium garden in the offices of the Global Change Institute (GCI) at the University of Queensland.

Recently featured on ABC TV's Gardening Australia, the gardens rise dramatically within a glass-roofed two-storey atrium that doubles as a light well. Including a wetland/pond system, water and nutrients are recycled, and the green walls are part of an air-cooling and filtering system that contribute to the sustainable building design. The GCI building aims to meet Living Building Challenge requirements, the most rigorous international sustainability standards available for the built environment.





SMALL SCALE Vertical GARDENS

WHETHER EDIBLE OR ORNAMENTAL, THERE'S A WALL GARDEN FOR YOU.

here are many small-scale vertical garden kits suitable for balconies and courtyards, or any spot you like. Some will work better than others. Before you invest time, money and enthusiasm, pause to consider the following, and also discuss at garden centres or see if you can find people with systems working well.

Your purpose

Are you inspired to disguise an ugly wall, bring greenery into a built environment or grow herbs and food plants? Or maybe you are trying to resolve space issues on a balcony garden or you just love a gardening project?

Planting systems

Modular kits are readily available. Some have builtin irrigation and drainage collection systems. You need to be able to attach a hose, and for best results, an irrigation timer is recommended. These are ideal for situations where drainage is an issue.

Cheaper versions are simply panels of planting pockets with a range of sizes and materials available. You'll need to water by hand or install your own dripirrigation. The size of each pocket influences plant choice and fertiliser requirements.

A couple of options for green wall gardens with goodsized planting pockets are the slim modular systems from Atlantis (atlantiscorporation.com.au) and Holman (holmanindustries.com.au). Whites has a selection of wall-mounted options (whitesgroup.com.au).

Top: Herbs are ideal for small wall garden pockets. Above: This portable vertical garden is perfect for small spaces.



Above: A more permanent wall garden

Growing medium

This can be organic or inorganic, the latter being a hydroponic system. Always choose premium potting mix or enrich with your own compost. Cheaper mixes tend to underperform.

Location

Is it indoors, outdoors, shady or sunny or both, windy, damp, under eaves, over a hard surface that will heat up? Can you leave a hose hooked up for auto-watering? Where will water drain to?

Plants

The plants you choose need to be suited to the location. Plant selection is key to success. Plants that naturally grow on vertical surfaces without soil are called epiphytes. They tend to grow on trees or rocks in moist, often warm, protected environments such as rainforests or damp gullies. Many ferns, orchids, bromeliads and vines are epiphytic.

Plants with shallow root systems are also suitable. Ornamental green walls come into their own when the plants grow so well that you can't see the wall. Choose plants that are fast-growing and have dense, spreading foliage and a variety of forms. The chosen plants need to all like the same growing conditions.

Of course, if your mission is to grow herbs and food plants, you'll choose edibles (see the list at right). An edible garden will thrive with larger planting pockets, a nutrient-rich medium (a quality potting mix with some added compost) and good water supply. You can easily grow a range of edibles, including leafy greens, herbs, cherry tomatoes, strawberries, chillies and more.

PLANT CHOICES

SUNNY SPOT EDIBLES

Alpine strawberry (P)
Arugula/rocket (P)
Basil (A)
Chillies (P)
Chives (P)
Garlic chives (P)
Gotu Kola (P)
Lemongrass (P)
Lettuce (A)
Nasturtium (P)
Oregano (P)
Parsley (A)
Radish (baby) (A)
Prostrate rosemary (P)

Thyme (P) Cherry tomatoes (Bush) (A) Vietnamese mint (P) Warrigal greens (P)

Strawberry (P)

SEMI-SHADE EDIBLES

Chervil (A)
Gotu Kola (P)
Mint (P)
Nasturtium (P)
Parsley (A)
Peppermint (P)
Watercress (A)

SUNNY SPOT ORNAMENTAL

Bromeliads (P)
Dianella (P)
Dichondra (P)
Geranium (P)
Lobelia (A)
Lomandra (P)
Nandina domestica
'nana' (P)
Orchids (P)
Petunia (A)
Strobilanthes spp. (P)
Succulents (P)

SHADY SPOT ORNAMENTAL

These are all perennials: Aspidistra – cast iron plant Blechnum - fishbone fern Bromeliad Chlorophytum Cissus - grape ivy Coleus Davallia – hare's foot fern Hoya australis – wax flower Nephrolepis – Boston fern Orchid Philodendron Pilea – aluminium plant Spathiphyllum Viola hederacea - native violet Zygocactus

WALL GARDEN PLANTS

Don't be afraid of experimenting with plants that aren't on this list. If you live in a cold climate, ensure the location is protected from frost, or select frost-hardy species.

Watch where the sun moves and put the most sun loving plants in positions that get the most sun.

If you live in a mild climate, most indoor plants are suitable for shaded, sheltered outdoor areas.

KEY: A = annual P = perennial

INFORMATION AND INSPIRATION

- The Greenwall Company: greenwall.com.au
- Junglefy: junglefy.com.au
- growinggreenguide.orgl
- greenroofs.com/projects/global-change-institute/
- brooklyngrangefarm.com/farms



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FARMING for young and old

AUSTRALIA'S FARMING POPULATION IS AGEING AND MANY ASPIRING YOUNG FARMERS LACK ACCESS TO LAND. HARCOURT ORGANIC FARMING CO-OP HAS A SOLUTION, WRITES SARAH COLES.

atie and Hugh Finlay are third-generation fruit growers based in Harcourt, Victoria, with a 30-hectare farm that includes an orchard filled with 140 varieties of stone and pome fruit. In 2004, they started farming organically and their business, Mount Alexander Fruit Gardens, received organic certification in 2008.

By 2017, the year that Hugh turned 60, the Finlays needed a succession plan. None of their children wanted to farm, but they didn't want to sell or move.

"We didn't want to waste all the hard work we'd put into improving our soil," Katie says. "We knew there was a capacity for the farm to be more productive – but not by us."

The Finlays were already leasing land to Gung Hoe Growers, a certified organic vegetable market garden owned by Mel Willard and Sas Allardice.

"Gung Hoe were a couple of young farmers needing access to land. So the idea of expanding the concept made sense," Katie explains. They were also approached by Tessa Sellar, who needed land for her dairy farm.

In late 2017, Katie and Hugh ran a campaign to find somebody to lease four hectares of the orchard. They chose Ant Wilson, who'd heard about the opportunity





Top: Hugh and Katie Finlay came up with the idea of the co-op as a way of keeping their farm going. Left and above: Tessa Sellar of Sellar Farmhouse Creamery.

at a grassroots small-scale farmers event called Deep Winter Agrarians.

That was just the start for the Finlays, who realised they could help even more young farmers gain access to land. But they wanted to create a community where one member equals one voice. This was the inspiration for the Harcourt Organic Farming Co-op (HOFC), launched in July 2018. It provides a succession plan for Katie and Hugh, growth for the farm, and a business pathway for young farmers. As well as the land, the co-op provides shared access to machinery and infrastructure, and most importantly, knowledge.

Katie's father, Merv Carr has been grafting and budding heritage fruit trees for over half a century. Merv, Katie and Hugh provide ongoing mentoring to the young farmers at HOFC.

TRUE COOPERATION

Most co-ops are a single enterprise. Harcourt Organic Farming Co-op consists of multiple businesses. Current members of the HOFC are Gung Hoe Growers (the first tenants), Tellurian Fruit Gardens, Sellar Farmhouse Creamery and Carr's Organic Fruit Tree Nursery.

Gung Hoe Growers

Gung How Growers are expanding to a new patch they've dubbed 'peaches and cream'. Their vegie plots have doubled in size every year bar one since they started. "Our fifth crop of garlic is in the ground now. We have a lot more demand than we can meet," Mel says.

A key goal for Mel and Sas is to build a viable local food system – Bendigo, which is 32 kilometres away, is as far as their produce travels for sale.







Tellurian Fruit Gardens

Ant Wilson had no experience growing fruit prior to starting his business Tellurian Fruit Gardens, but the mentoring from Katie and Hugh made the deep-end less threatening. "Day one, how to pick apricots," he laughs.

"You don't get taught in school that you can be a farmer," says Ant, who actually joined the army straight out of school. But in his early 20s he decided to become a farmer.

"I felt disenfranchised. I kept reading articles about how agriculture was causing damage to the environment. I can see the need for radical change, the need to redesign our economic system and the way that we grow food."

His first year wasn't easy. "I lost all my apples to kangaroos and sunburn."

Ant is now on the committee of the Australian Food Sovereignty Alliance.

Sellar Farmhouse Creamery

In mid-2016, Tessa Sellar attended the Community Food Hubs Conference in Bendigo. At the time, Tessa had completed an internship with the producers of Holy Goat cheese and was employed there as herd manager.

She wanted a dairy of her own but didn't have access to the necessary land. She also didn't want to borrow money to get started.

"I don't ever want to wake up and milk cows because I have to pay a debt to the bank," Tessa says.

Tessa was upset on the morning of the conference.

"I realised that I wasn't going to be able to buy land. I was asking myself 'What is the catalyst that is going to make me jump and do something myself? How do I find land? What makes me start this business instead of just dreaming about it?"

At the conference Katie Finlay stood up and said that she was looking for young farmers to lease land.

Sellar Farmhouse Creamery is now a 10-cow micro dairy based at HOFC. It includes a 40 foot shipping container for on-farm processing, producing milk, butter, cream and yoghurt.

With the help of her partner Oliver Holmgren, Tessa designed and built a mobile milking parlour that goes wherever the cows are. This means Sellar Farmhouse avoids issues that plague many dairy farmers such as effluent build-up and compaction of the soil.

Tessa is driven by animal rights. Newborn cows spend at least three months with their mothers. With a background in environmental activism, it was important to Tessa to be able to use recyclable glass bottles for her cow's milk.

"Leasing land means that I can try out my idea and my enterprise without as much risk of it falling over."

Access to land is a major benefit to Tessa and the other young farmers.

"In central Victoria, I don't believe that it is possible to earn enough money solely through farming to buy farm land," Tessa says.



Carr's Organic Fruit Tree Nursery

Katie's father Merv Carr studied horticulture at Burnley back in the 1960s. Katie and Sas were keen to learn from Merv, and so teamed up with him to run Carr's Organic Fruit Tree Nursery. Katie says that although Merv wasn't an organic farmer, "He was quite innovative within his paradigm." Carr's Organic Fruit Tree Nursery is the only certified organic fruit nursery in Victoria. Their focus is on growing trees in local conditions for local gardens.

GROUP EFFORT

A key undertaking of the HOFC is to sequester more carbon into the soil for long-term climate crisis mitigation. The HOFC principles are influenced by the work of soil scientist Dr Elaine Ingham and sustainability educator Dr Arden Andersen, with the aim of increasing the diversity of organic matter and microbes.

"If you provide the right conditions in the soil for good microbes, the bad ones go away. That's all you have to do. You just have to stop doing the wrong thing and just get out of the way," explains Katie.

The co-op is building biodiversity into the soil through symbiosis with the different enterprises working together.

Tessa practices rotational grazing of her dairy herd throughout the farm. The Gung Hoe team are using her cows to graze their green manure crops and trample them back in (rather than hoeing them in), so there is no soil damage and the cows get extra feed. Tessa's cows also graze in Ant's orchard, keeping the grass down and eating any damaged fruit. Meanwhile, Ant's chooks fertilise Gunq Hoe's vegie patches.

The HOFC is productive and profitable, with its

Above: Katie Finlay and Merv Carr work together on Carr's Organic Fruit Tree Nursery.

ORGANIC TEACHING

In 2013, before the Finlays got the idea for the co-op, they started an online education business, Grow Great Fruit. After years of being subjected to droughts, floods and bushfires, they wanted a portable business that wasn't dependent on the weather. Grow Great Fruit aims to help fruit growers succeed with organic methods.

"It stretches from orchard design and growing your own trees, to preserving the harvest, and everything in between," Katie says.

There are weekly e-classes, one-on-one calls and monthly webinars, along with books and videos. They also have a fruit tree database. Visit: growgreatfruit.com

farmers benefiting from co-branding and co-marketing. They also save money on organic certification and insurance by operating as one entity.

For Ant, though, a key benefit of the co-op is as an emotional support network. "Someone to listen when I say 'the birds are eating my apricots'."

As a model for farm succession, allowing farmers to step back from the physical demands of farming, it appears to be working.

And there is still more room. The co-op is on the look-out for another young farmer to join the ranks. They're thinking chooks, bushfood, bees or flowers. **@**



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GOING

JUSTIN RUSSELL INVESTIGATES SELF-WATERING WICKING BEDS OF ALL KINDS THAT WILL SAVE WATER. AND YOUR TIME IN A DRYING CLIMATE.

ater. It's the single most important element on the planet, essential to life, the thing that sets Earth apart from every other spherical rock in the known universe. Some people argue that soil is more important, but after trying to garden and farm through two epic droughts, I beg to differ. Healthy topsoil may well be the foundation of civilisation, but nothing works, not even soil, without moisture.

You'd think that something so vital would be more treasured than gold, but out-of-control pollution, inefficient catchment systems, dammed rivers and corrupt misuse of what precious little water there is, are all contributing to a global water crisis that will reshape the planet in this new decade and beyond.

We're witnessing this crisis in our own country, with the Barka/Darling River running dry, footage of mass fish kills going viral, and towns having to truck in drinking water because local supplies have been exhausted.

As a kid, water seemed infinite but I now see it very differently, and use it as efficiently as possible. I've designed and planted my garden with drought tolerance in mind, I mulch to reduce evaporation and competition from weeds, and when I do irrigate, I try to use the most efficient techniques available. Hand watering has always been an important part of my gardening

Above: The Biofilta Food Cube system is expandable from small to large-scale plantings, such as this one at Athol Road Primary School in Victoria.





practice. It allows me to get up close and personal with my plants, apply an accurate amount of water for each species according to its needs, and it's meditative. But the current drought is proving so remorseless that I'm spending hours of otherwise useful time on the nozzle end of a hose. What's the solution? The answer, at least for my vegie patch, is to use wicking beds.

What is a wicking bed?

If you haven't yet come across them, wicking beds are cleverly based on the concept of a natural aquifer. Water is stored in a reservoir below the soil, where it is protected from evaporation. Through a process of capillary action, this water is wicked upwards through the soil profile, where it becomes available to the roots of plants. The wicking process requires no external

Left: Modbox is an example of a more sophisticated raised bed wicking system.

Below left: Another example is the Watersaver wicking bed, with a reserviour that will fill with rainwater.

energy inputs to work, and only a small amount of overhead watering to settle in seedlings or germinate seeds, plus the occasional top up of the water in the lower reservoir.

This layered system means that wicking beds are raised above soil level, with various framing systems used to contain the water and the soil. They can be small DIY models made from reused polystyrene produce boxes, up to large beds framed with materials such as timber, corrugated steel, or plastic.

Here are a few things to bear in mind when making or purchasing a wicking bed system:

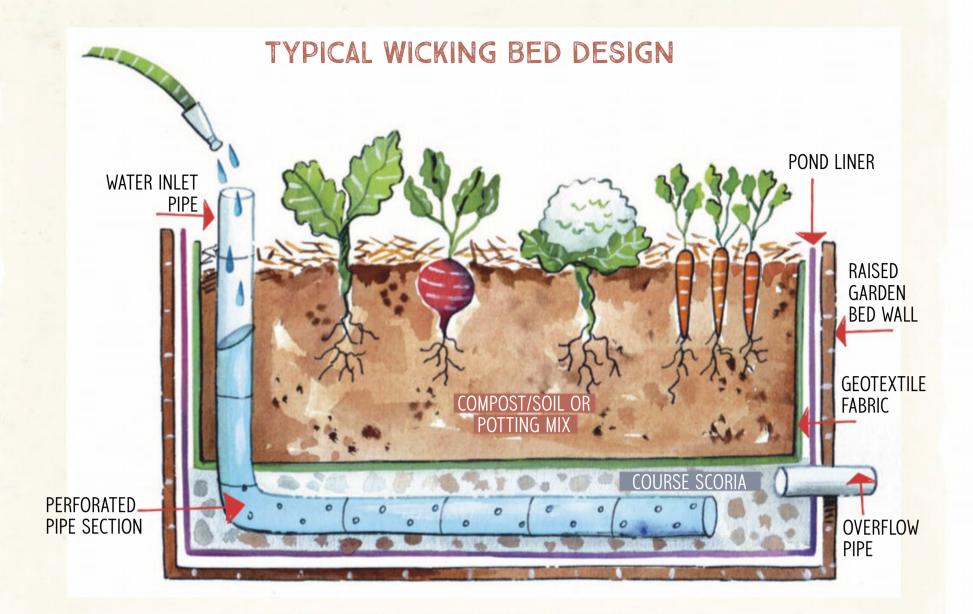
- Many off-the-shelf products are quite small, limiting what you can grow (don't underestimate how big some plants actually get). Also, many models are quite high off the ground, so unless you want to be harvesting tomatoes and sweetcorn cobs from the top of a ladder, consider a couple of different approaches for different crops – lettuces up high, tommies down low, for example.
- Make sure the reservoir has an overflow you don't want the wicking bed to become a rot inducing, anaerobic swamp during periods of heavy rain.
- Choose long-lived, non-toxic materials that have a small environmental footprint. Make sure plastic is UV treated (or protected from the sun) and ideally recycled. Also, ensure materials used for the reservoir won't rot (and therefore slump, requiring a rebuild). Make sure you fill the top of the bed with good quality soil or potting mix.

With that said, here's a roundup of some of the most commonly available wicking bed systems.

Homemade

For those of you who are handy, it's pretty straight forward to make wicking beds using reused and recycled materials. I've seen some great wicking beds made from old enamel bathtubs and Sophie Thomson from ABC TV's Gardening Australia has some great info on building beds from reused IBCs (that's reuseable, industrial-grade containers, which are often used for transporting liquids). You will be able to find local suppliers online. Search 'ABC Sophie Thomson IBC wicking bed' on youTube to find a great video.

It's also possible to make a hybrid system using a combination of purchased wicking systems and existing garden beds. See Penny Woodward's story on the next page on how she retrofitted her raised beds with a nifty little plastic system that helps create the lower reservoir.



BASIC TIPS FOR WICKING BEDS

SOIL DEPTH

For most vegies 30–40cm is perfect soil depth to ensure roots go down far enough to be able to wick from the water well. Shallow-rooted lettuces and similar vegetables only wick through 20cm, so in beds with deeper soil these vegetables will need occasional watering. If you are growing dwarf fruit trees, then soil depth can be 50cm.

SEEDS AND SEEDLINGS

These need to be watered, especially in summer, until roots grow to the depth that they can wick water.

FEEDING PLANTS IN YOUR BED

It's fine to add well-rotted manures, compost and worm castings to the soil in the wicking bed as these are relatively low in nutrients. But don't overdo additions of complete pelletised or liquid fertilisers. Wicking beds are closed systems and nutrients that aren't used by plants will stay in the water well below the soil. These can eventually build up to toxic levels.

FLUSHING THE BED

Once a year, flush your system by filling the well from the inlet and letting it flow out from the outlet until much of the water has been replaced. This will get rid of excess nutrients.

INLET AND OUTLET PIPES

Keep a lid or cover (fly mesh with a strong tie) over your inlet pipe so that mosquitoes can't breed in the water. Cover the outlet pipe with fly mesh too or regularly check that it hasn't been blocked. I found that small snails had crawled into mine and the water wasn't flowing out during heavy rainfall.

MULCH

Mulch is an important addition to wicking beds, reducing the amount of water used and adding organic matter to the soil as it breaks down.

KNOW YOUR WICKING BED

Observe your wicking bed and work out how often it needs topping up. You can use a bamboo stick or similar, dipping it down the inlet pipe to check the water level. My wicking bed only needs to be topped up every four weeks, even in summer. But smaller beds may need to be topped up more often.

FRAMES AND STAKES

Remember that your wicking bed relies on non-permeable liners to prevent leaks from your water well. Be very careful if you need to use support structures, ensure there is no chance of them perforating the lining.

Penny Woodward

RETROFITTING YOUR GARDEN BEDS

In winter last year I created my own wicking bed using WaterUps. This innovative product is designed and manufactured in Australia from recycled plastic. Each modular cell is made up of four hollow wicking legs and a solid deck. These cells can be placed side by side and if needed, cut to shape, to fit a huge range of containers, raised garden beds or larger landscapes. The WaterUps cells mean that no gravel is used.

I wanted to retrofit an existing large garden bed 1.2 x 2.4m. So I dug the soil out to the right depth and lined the inside of the bed with a 100 per cent recycled food-grade polypropylene liner. Inside this I placed the cells, holding them close using the clips provided. Because I was retrofitting, I had to cut some cells to fit my bed. This was easily done with a hacksaw. Inlet and outlet pipes were installed using the points made available on every cell. Each wick was then filled with fine-grade perlite. I finished by returning the soil to the bed with extra organic matter, then filling the reservoir with water though the inlet pipe and planting the bed.

I've grown garlic, rocket, radishes and tomatoes so far, and all thrived or are thriving. I'm looking forward to seeing how the tomatoes go in the wicking bed, compared with tomatoes in other beds. I intend to convert more of my beds to wicking beds using this system over the next few years. While set up can be expensive, the cells and liner are long-lasting and I love the idea that water will not be wasted. As gardening becomes increasingly tough, I believe these wicking beds could make a real difference.

There's excellent information guides about set up and blogs about how to use the wicking beds on the website: waterups.com.au.

Penny Woodward



Above: Waterups cells can be used for any wicking bed.





Top: A mini bench wicking bed, such as the GlowPear from Green Life, means you can even have one on a balcony. Above: An example of a steel raised wicking bed from Biofilta.

Trug and planter boxes

A few manufacturers are producing trug or cradle-type systems ideal for new gardeners, those with mobility issues and those with compact spaces, such as balconies. These generally feature a vessel that sits on legs, raising the growing platform to about waist height. Some are made from treated timber, others are UV treated plastic. More advanced products come with wheels to move the bed around and fitted screens to protect plants from insects and sunburn. Visit the following for an idea of what's available: biofilta.com.au glowpear.com.au greenlife.com.au

Raised beds

To maximise the amount of space you have available, raised beds are the go. These range in height from 400mm (two timber sleepers high) to waist level and are generally made from timber or steel. They're often a bit simpler in design than the trug systems and come in kit form that features a frame, a reservoir (either built in or that needs to be installed) and permeable material (usually geotextile fabric) to separate the reservoir from the soil.

Check out these companies for wicking bed ideas:

orto.com.au vegepod.com.au vegtrug.com.

- biofilta.com.au birdiesgardenproducts.com.au
- modbox.com.au watersavergardens.com.au







UNPREDICTABLE DAYS

DROUGHT, FIRE, STORMS, PESTS: THERE'S A LOT TO COPE WITH WHEN OUR CLIMATE IS SO UNCERTAIN.

itting in my office shrouded by smoke, our climate and bushfire emergency is very much front of mind. I have heard on my garden grapevine that some fire affected gardeners are already replanting their gardens. It's heartening to see the resilience of gardeners.

My main recommendation is to hasten slowly. Bushfire affected gardens can be unexpectedly resilient, too. Many trees will regrow from epicormic or suckered growth, some bushes will reshoot, bulbs will appear when the season is right, and even seeds from self-sown vegies and herbs will shoot when rain comes. Further

north, Leonie Shanahan says that February and March in the tropics and subtropics can be a tough time of year to predict these days, as the wet season is no longer guaranteed. In so many ways gardening is less predictable and perhaps harder, but it's important not to give up.

No matter what climate you garden in, one solution is to focus on perennial vegetables that need less attention, and hardy fruit trees. Grow fewer annuals, except the self-sown ones. If it's still too hot or dry to plant now, then work out a planting plan for later in autumn.

Penny Woodward







Tropical

- Top tip: Provide extra homes for green tree frogs by creating a shelter that is safe, cool, moist, out of the sun and protected from all elements. Good materials include cut bamboo, log hollows, or frog 'hotels' made from lengths of pvc piping, tall enough to keep the frogs away from predators, such as dogs, cats, cane toads and birds.
- Mow to: Organic matter in the soil is crucial. It holds the soil together, improves its structure and lifts its water holding capacity. Wet season is the best time to grow green manure crops to feed the soil. Try a combination of legumes and grasses such as buckwheat, cowpea and mung bean. Seed sellers also have green manure packs. Also, you can make use of weeds in your garden by chopping and turning them into the soil before they have flowered (so you are not burying weed seeds).
- Plant now: Lablab is a fast growing, vigorous, nitrogen-fixing edible that is also grown as a green manure crop, ground cover, animal forage, or to produce leaf litter for soil mulching. Leonie Shanahan

Top: White-lipped green tree frog. Top left: Lablab is great for soil and as animal forage.

Left: Buckwheat is a good green manure crop.



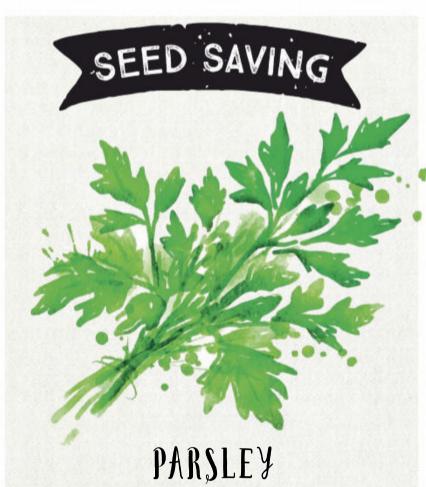
Above: Hessian allows a safe landing spot for bees.

Subtropical

- Top tip: Fire or smoke affected plants will be stressed and need to be nurtured back to health. Don't feed with a complete fertiliser as you don't want to encourage new growth. Instead, use a foliar health tonic of fulvic acid and seaweed. Ratios: fulvic acid is usually 15ml per 9 litre of water (but read instructions), and seaweed around 10ml per 9 litre water. Spray fortnightly.
- Must do: Provide different depths of water containers to accommodate wildlife. For example, some bees suck water from shallow dishes with sand (not beach sand, you need river sand) in it. In larger water bowls have sticks, rocks and/or hessian on the edge for landing and resting pads for bees otherwise they could drown. Large bowls and ponds are good for birds to bathe and drink. Keep water clean. Place water near the garden for their extra protection/safety.
- Plant Now: Set up a potted garden by your back door with your favourite herbs and salads. Your plants will thrive with extra shelter and attention. You can recycle clean water from the house to water plants.

Leonie Shanahan

In larger water bowls have sticks, rocks and/or hessian on the edge for bees.



Curled and flat-leaf parsley sow themselves in many vegetable gardens, with each plant producing vast amounts of seed. Collect when heads are almost completely dry. Cut stems and, over a large tub, lightly rub the heads – the seeds should release easily. If they don't, tie and hang stems inverted over the tub in the shed or under a carport to dry. Winnow by blowing lightly across seed spread on a tray. Store seed in clean glass jars in a cool, dark place, but also try sparsely scattering some throughout the garden: they'll germinate in the places that suit. Sow stored seed in spring, summer or early autumn and be patient, as it often takes up to a month to germinate.

Helen McKerral



Most people have heard of vision boards as a process done at the beginning of a year to focus on what you aspire to achieve that year. You can also create a vision board for gardening. It might include things to construct or install, such as: water tanks, dams and water features; habitat to create safe havens for wildlife; or simply new plants you want to grow. Your vision can also expand beyond your own garden to include: documentaries you want to see on gardens and nature; garden shows and display gardens you've always wanted to visit; community projects to be involved in. The list is limitless.

STEP-BY-STEP:

- Gather together supplies: a sheet of colourful poster paper, textas, glue, scissors.
- Collect magazines, brochures, catalogues, photos, visual ideas.
- Take time to think about your garden aspirations for the next year.
- Fill your poster with colourful pictures, words, drawings.
- Hang it where you can see it every day and visualise it happening.

Leonie Shanahan





arid/semi-arid

Pest alert: Black aphids on onions, chives and related plants initially resemble grains of sand along the stems and leaves before covering the plants seemingly overnight and sucking them dry. If you've had this problem previously, inspect regularly and spray at the first sign with soapy water or white oil spray (see p.24 for instructions to make your own).

Must do: Chillies love summer, as long as it's not extreme! In hot regions or those experiencing heatwaves, water potted chillies regularly with seaweed extract to increase cell strength, and move plants to dappled shade or east/south-easterly aspects to prevent flower drop.

Top tip: Gourds will be growing and expanding rapidly at this time of year. Keep the water up to them now to promote maximum size, but taper towards the end of summer as gourds reach their full size so that skins can dry and harden. In areas with early rain, harvest and store under cover.

Helen McKerral

Warm temperate

- Plant: At the very hottest times of year, plant heattolerant lettuce cultivars and provide some shade. Try planting them under steps, or beside plants or fences that provide afternoon shade. Or create a simple shade frame. Options include: 'Australian Yellow Leaf', 'Buttercrunch', 'Flame', 'Goldrush', 'Lollo Rossa' and 'Royal Oakleaf'.
- Pest alert: We often forget that caterpillars pupate into butterflies and these butterflies may be threatened Australian species. Even if we're controlling introduced

pests like cabbage white butterflies, it's still important to do as little damage as possible. Curb these pests by brushing eggs off the back of leaves or squishing young caterpillars. And control all caterpillars by spraying leaves with molasses or Bt (Bacillus thuringiensis), both of which only kill when the caterpillar eats the leaves. Alternatively use a fine net over the whole plant.

Top tip: This is counterintuitive, but it's important to not overwater during dry times. This can be very damaging, especially in heavy soils, where water sitting around roots will fill air pockets and cause roots to rot. Monitor soil moisture and only water when needed.

Penny Woodward

Cold temperate

- Top tip: On very hot, windy days, spraying foliage helps reduce leaf temperatures and so plant stress. This should mean plants can continue to photosynthesise before closing their stomata (pores on leaves) to prevent too much water being lost. Don't do this late in the day when water left on leaves can causes fungal problems.
- Pests: Possums don't much trouble my garden because a neighbour feeds them. They are very territorial so keep other possums away. Often possum control comes from a diverse number of non-harming actions from strong fruit exclusion bags of netting or wire, to intermittent lights or noises, and strongly scented products like menthol rubs smeared onto nearby fences.
- Pest: Sooty mould fungus grows on sugary exudates from aphids and scale. To remove the sooty mould just wipe the leaves with a slightly soapy sponge. Scrape off or spray the pests. A pest oil that smothers is the most effective. Finally control the ants that spread the pest by putting a sticky collar around the tree trunk.

Penny Woodward





PLANT/SOW	FEBRUARY	MARCH
ASIAN GREENS	0 0	00 00
BASIL	0000	99
BEANS: FRENCH/CLIMB	00	000
BEETROOT	000	00
BROCCOLI	9 9 9	0000
BRUSSELS SPROUTS	000	999
CABBAGE	99	0000
CARROT	000	0000
CAULIFLOWER	0000	0000
CELERY/CELERIAC	0000	0000
DAIKON	9	0000
EGGPLANT	000	00
HERBS/MEDITERRANEAN	88	99
KALE	9 9	0000
KOHLRABI	000	0000
LEEK	000	00 00
LETTUCE	0000	0000
ONION	00	000
PARSLEY	<u> </u>	0000
PARSNIP	00	0
PEAS	9	9 9
RADISH	0000	0000
ROCKET/ARUGULA	0 00	0000
SILVERBEET	000	0000
SPRING ONION	00	0000
SWEDE	0000	00000
TARO/COCO YAM	00	00
TOMATO	000	00
TURNIP	00	000

OUR CLIMATE ZONE MAP IS A SIMPLIFIED VERSION OF A BUREAU OF METEOROLOGY MAP. FOR MORE DETAILED CLIMATIC INFORMATION IN RELATION TO CITIES AND MAJOR TOWNS. GO TO: BOM.GOV.AU/JSP/NCC/CLIMATE_AVERAGES/CLIMATE-CLASSIFICATIONS/INDEX.JSP

A touch of Crete

PENNY WOODWARD SAYS CRETAN SAVORY HAS A PLACE IN ANY GARDEN FOR ITS CULINARY. MEDICINAL AND BEE-ATTRACTING PROPERTIES.

ా his small evergreen, perennial shrub is closely related to other Mediterranean herbs like rosemary and thyme and, like them, both the leaves and flowers have a strong, spicy aroma and flavour.

Cretan savory (Satureja thymbra) is an erect, slightly wandering herb with angular, branched stems, softly grey/green leaves and numerous small pink flowers. It is also known as pink savory, savory of Crete, Roman hyssop and goat savory because goats love it. Cretan savory is indigenous to woodlands, rocky mounds and limestone gullies on the

island of Crete and other parts of the Mediterranean.

It is relatively easy to grow from seed, but easier still from cuttings or rooted pieces taken in spring, summer or autumn. To grow cuttings, cut about 10cm of the growing tips and strip off most of the leaves, except for the top 3 or 4 pairs. Dip the base of the stem in honey and push into a pot of moist seed raising mix. Put several into the same pot. Keep moist and in a shady position. After about a month, roots will have grown and the small plants will be ready for transplanting.

Plants need a well-drained loamy soil, so if your soil is heavy and stays wet for long periods, then grow in a pot. Plant in a sunny, open position and water regularly until well established. Bushes can be as tall as 50cm and about the same across, but are usually a bit smaller. Regular picking keeps the bush compact, or if you are not using it much and the bush starts to straggle, prune about one third off in autumn.

Like all savories, this one is an excellent bee plant. Bees collect an aromatic nectar that produces a



deliciously fragrant honey. Cretan savory attracts a range of other pollinators and beneficial insects, making it worth space in any garden.

One of this plant's more unusual names is 'barrel sweetener' because in a Cretan autumn it was harvested in bulk, made into a strong infusion and used to clean wine barrels before the next grape harvest.

For the kitchen

Use Cretan savory sparingly in any dish that benefits from its savoury, spicy flavour. Sprinkle it fresh and finely chopped over strongly flavoured vegetables like turnips

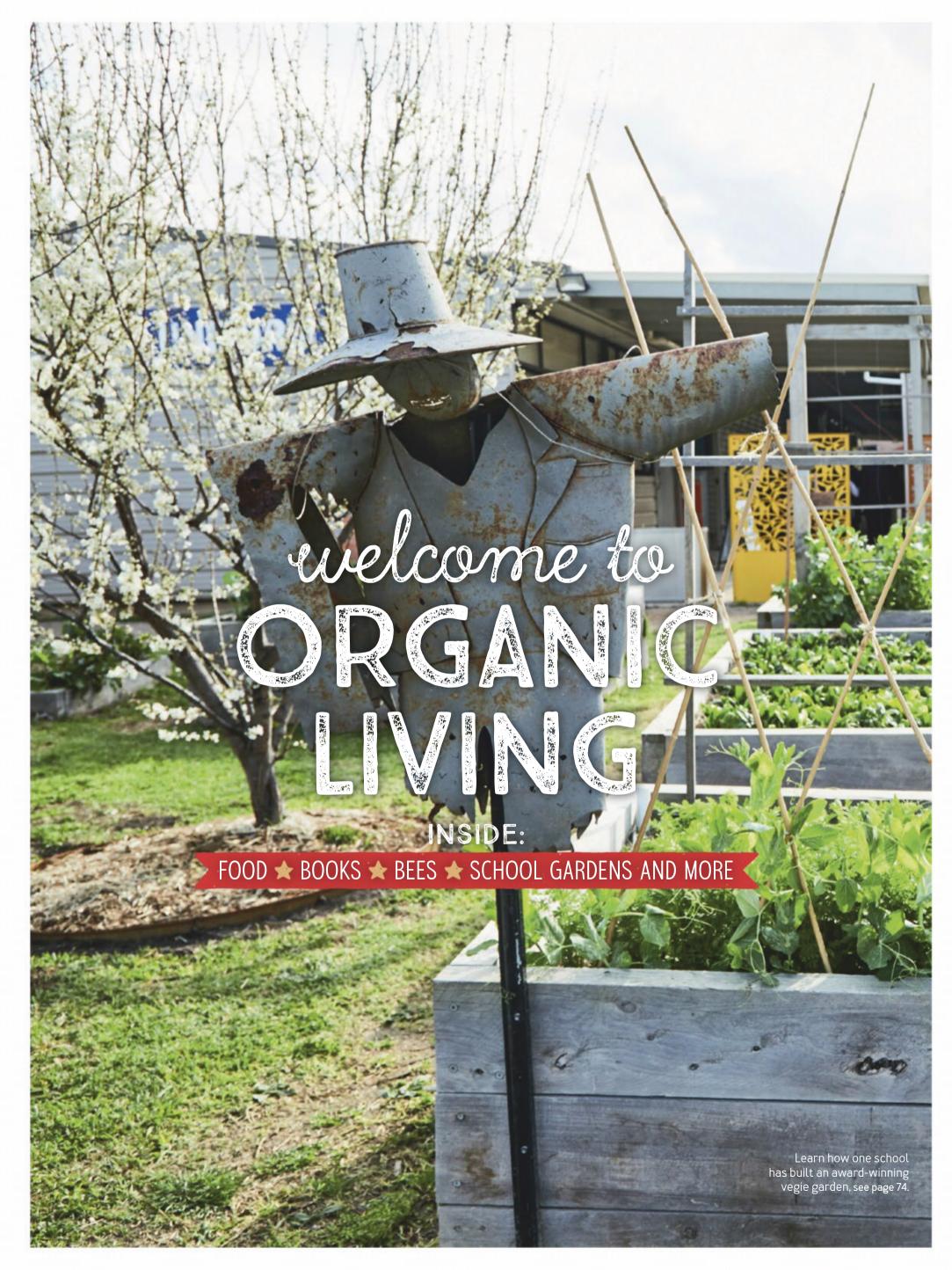
and swedes. Add it to soups and winter stews, and like all savories it's an important part of any bean dish, helping with the flatulence often associated with beans. It also makes an excellent addition to breads, especially rye breads.

For your health

Cretan savory makes a delicious herbal tea: just add a teaspoon of fresh leaves and flowers to an infuser, or simply place in a cup and pour boiling water over the top. It can just be drunk for its flavour, but it will also ease digestive problems, and help with bronchial congestion. Its antiseptic attributes will also ease a sore throat if gargled. Alternatively, steep leaves for several weeks, packed into a small jar and covered in a light olive oil. Then, strain out the leaves and use the oil for a massage, both for relaxation and sore joints.

SELECTED SUPPLIERS

herbcottage.com.au
midsummerherbs.com.au





Simply SUMMER

THIS TIME OF YEAR CALLS FOR FUSS-FREE FOOD WITH A COLOURFUL BURST OF FLAVOUR. WHICH IS EXACTLY WHAT YOTAM OTTOLENGHI DELIVERS IN HIS MOST RECENT BOOK.

here's a simple secret behind Yotam Ottolenghi and his success: a joy of food that is fresh and natural, made using ingredients that can be sourced locally, along with a wish to share that joy. His recipes may start in his famous London kitchens but once on the page of his best-selling books, they inspire with their vibrant, colourful and delicious (of course!) Middle-Eastern flavours. Here we feature some recipes from his book *Simple* that are just that, taking minimal time with a short list of ingredients, mostly plant based.

2 tablespoon Valdespino vinegar (or other bestquality sherry vinegar) 3 tablespoon olive oil 1 garlic clove, crushed 1½ teaspoon soft dark brown sugar

About 320g seedless red grapes, pulled off their vine

1½ teaspoon fennel seeds, toasted and lightly crushed Flaked sea salt and black pepper

3 large balls of burrata or buffalo mozzarella (600g) 6 small red or green basil sprigs, to serve

BURRATA WITH CHARGRILLED GRAPES AND BASIL

Serves: 6 as a generous starter

Burrata - which means 'buttered' in Italian - is one of life's great pleasures. The outside is firm mozzarella, the inside an oozy combination of stracciatella and cream. The combination of the two is unsurprisingly good. Burrata can be paired with all sorts of flavours - citrus fruit or juice, sweet balsamic, peppery rocket, toasted spices. Here sweet red grapes are skewered and chargrilled: a method which is as simple as it is impressive. If you want to get ahead, marinate the grapes in the fridge for up to 1 day before grilling. If you can't get hold of burrata, balls of buffalo mozzarella make an absolutely fine alternative.

- **1.** Put the grapes in a medium bowl with the vinegar, oil, garlic, sugar, 1 teaspoon of fennel seeds, ¼ teaspoon of flaked salt and plenty of pepper. Mix well and set aside. Skewer the grapes on to sticks; you want about five or six on each stick. Don't throw away the marinade: you'll need this when serving.
- 2. Place a chargrill pan on a high heat and ventilate your kitchen well. Once hot, add the grape sticks in batches and grill for about 2–3 minutes, turning halfway through. Remove from the heat.
- 3. When ready to serve, tear the balls of burrata in half and place one half on each plate. Arrange the grape sticks to lean against them – two per portion – and spoon 1½ teaspoons of the marinade over the cheese. Alternatively, arrange on a platter to serve a crowd. Sprinkle with the remaining fennel seeds, garnish with a sprig of basil and serve.

HARVEST NOTES

Grapes

Grapes won't ripen off the vine. Cover bunches with strong paper or netting bags, or cover the whole vine with a fine-holed net to protect from birds and possums until ready. Test for ripeness by eating one or more of the bigger grapes.

Pick bunches using scissors or secateurs. Eat fresh, or keep for a week in the kitchen, or two to three weeks in the fridge. Dry by hanging outside in a warm, dry position, with good air movement. Cover with netting. Once shrivelled but still plump, remove the sultanas from the bunch and store in sealed container out of direct light.

Eggplant

Eggplants (also called aubergines) come in different shapes, sizes and colours. It's important to know what size and colour they should be, because if left for too long on a plant, the fruit will start to develop seed and become gritty, bitter and unpalatable. Harvest firm, plump, glossy fruit by cutting from plant with a small stem attached. Use immediately or store at room temperature for a week or so. Although new breeds of eggplant tend not to be bitter, some still need to be sliced and salted before use. Once eggplant skin shows yellow patches they are well past prime picking time, but perfect for seed saving. Penny Woodward

BEANS BEETROOT CAPSICUM

CASSAVA

EGGPLANT LETTUCE POTATO

PUMPKIN

RADISH ROCKMELON SQUASH SWEETCORN

Fruit

BLACKBERRY DRAGON FRUIT FEIJOA GRAPES NASHI

NECTARINE

PASSIONFRUIT PAWPAW PEPINO

Herbs

PERSIMMON **PINEAPPLE RASPBERRY**



BASIL DILL **FENNEL**

MITSUBA **ORANGE THYME CRETAN SAVOURY**

BULGUR WITH TOMATO, AUBERGINE AND LEMON YOGHURT

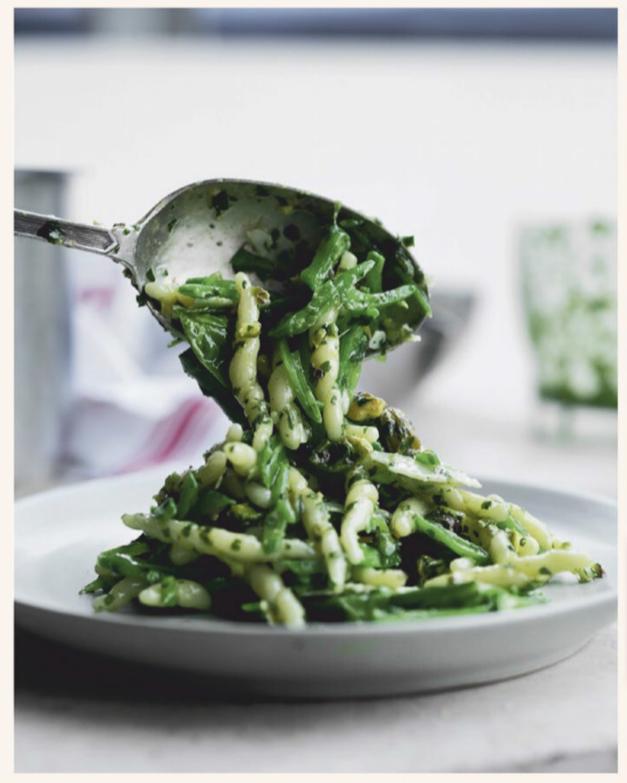
Serves: 4 as a main or 8 as a side

You can make just the bulgur and tomato, if you like (without the aubergine and preserved lemon yoghurt) and serve it as a side. With the aubergine and yoghurt, though, it makes a satisfying vegetarian main. You can make all the elements up to a day ahead, just keep separate in the fridge, warm through and assemble before serving.

2 aubergines, cut into 3cm chunks (500g) 105ml olive oil Salt and black pepper 2 onions, finely sliced (320g) 3 garlic cloves, crushed 1 teaspoon ground allspice 400g cherry tomatoes 1 tablespoon tomato paste 250g bulgur wheat 200g Greek-style yoghurt 1 small preserved lemon, pips discarded, skin and flesh finely chopped (25g) 10g mint leaves, finely shredded

- 1. Preheat the oven to 200°C fan.
- 2. Place the aubergines in a large bowl with 4 tablespoons of oil, ½ teaspoon salt and a good grind of pepper. Mix well and then spread out on a large parchment-lined baking tray. Roast for 35–40 minutes, stirring halfway through, until the aubergines are caramelised and soft. Remove from the oven and set aside.
- **3.** Add the remaining oil to a large sauté pan (for which you have a lid) and place on a mediumhigh heat. Once hot, add the onion and fry for 8 minutes, stirring a few times, until caramelised and soft. Add the garlic and allspice and fry for 1 minute, stirring continuously until the garlic is aromatic and starting to brown. Add the cherry tomatoes, mashing them with a potato masher to break them up. Stir in the tomato paste, 400ml of water and 1 teaspoon of salt. Bring to the boil, reduce the heat to medium-low, cover and cook for 12 minutes. Add the bulgur, stir so that it is completely coated and then remove from the heat. Set aside for 20 minutes, for the bulgur to absorb all the liquid.
- 4. In a medium bowl, mix together the yoghurt with the preserved lemon, half the mint and $\frac{1}{8}$ teaspoon of salt.
- 5. Divide the bulgur between four plates. Serve with the yoghurt and aubergine on top with a sprinkle of the remaining mint.









Extracted from Ottolenghi Simple by Yotam Ottolenghi (Ebury Press, \$55) ©Yotam Ottolenghi 2018. Photography by Jonathan Lovekin.

PASTA WITH PECORINO AND PISTACHIOS

Serves: 4 as a starter

Trofie is the traditional pasta to serve with pesto, but fusilli works just as well. For an extra twist of colour and flavour, stir through some oven-dried tomatoes. Slice 400g cherry tomatoes in half, toss with 1 tablespoon oil and some seasoning, and roast at 150°C fan for 40 minutes, until semi-dried and slightly caramelised. If you do a batch of these tomatoes they will keep well for up to a week, in a sealed container in the fridge, ready to be thrown in with all sorts of other salads and grains.

50g basil leaves 1 garlic clove, crushed 3 anchovy fillets in oil, drained 75ml olive oil 200g dried trofie pasta (or fusilli) 130g mangetout (snow peas or young flat pea pods), finely sliced on an angle

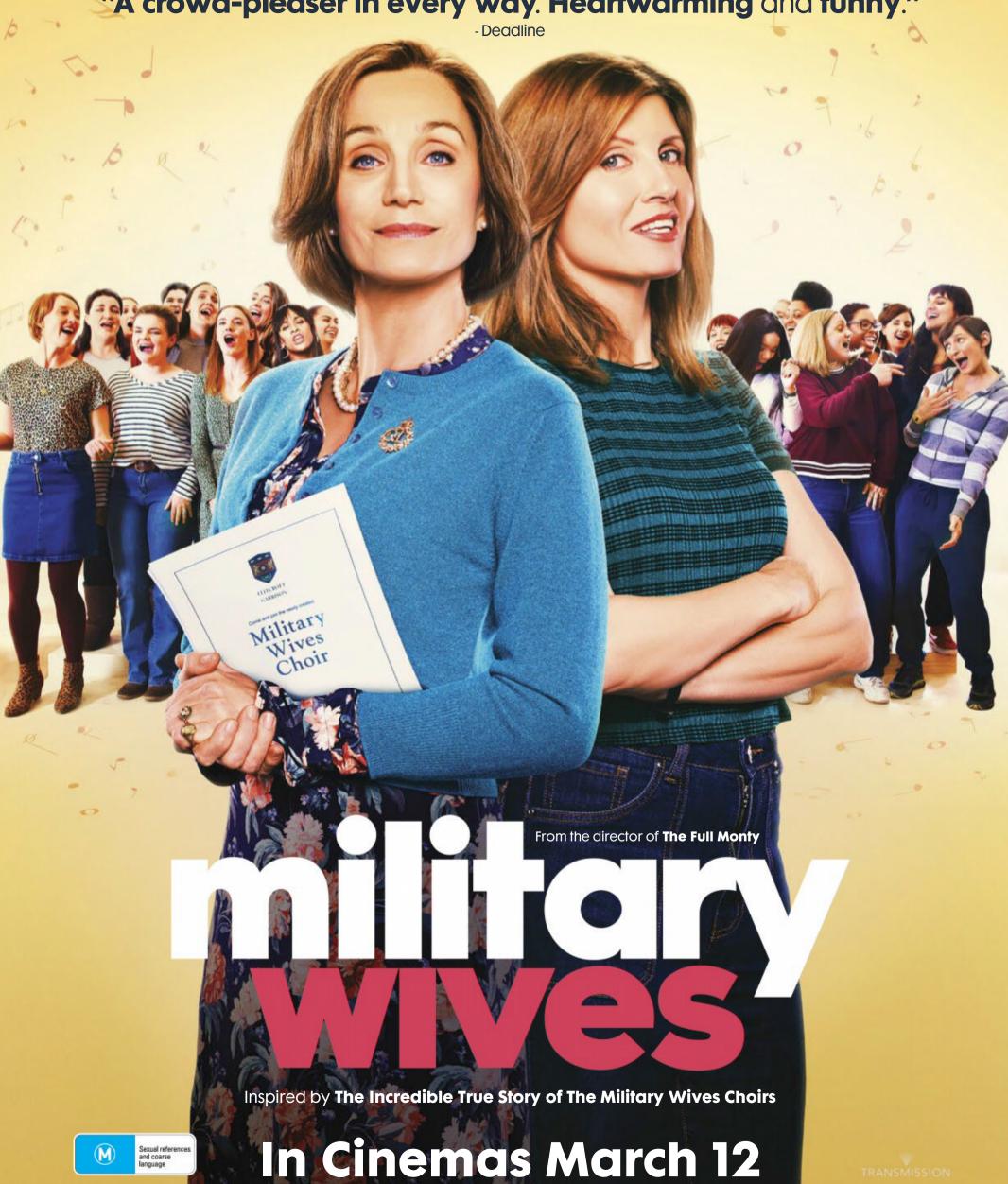
75g pecorino, finely shaved 75g pistachio kernels, roughly chopped 1 lemon: finely grate the zest to get 1 teaspoon Salt and black pepper

- 1. Place 30g of the basil in the small bowl of a food processor with the garlic, anchovies and olive oil. Blitz to form a rough paste and set aside.
- 2. Half fill a large saucepan with salted water and place on a high heat. Once boiling, add the pasta and cook for about 7 minutes, until nearly al dente. Add the mangetout and cook together for another 2 minutes, until pasta is just cooked and the mangetout are soft.
- 3. Retaining 2 tablespoons of water, drain the pasta and mangetout and place in a large bowl. Add the basil oil, stir well. Add the pecorino, pistachios, lemon zest, the remaining 20g of basil, 1/8 teaspoon of salt and a generous grind of pepper. Toss gently to combine, and serve. 😕

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in conversation with KEVIN MCCLOUD

KYLIE McGREGOR TALKS WITH KEVIN McCLOUD, ENVIRONMENTALIST, WRITER AND INTRIGUING HOST OF BAFTA AWARD-WINNING GRAND DESIGNS, WHO IS CURRENTLY IN AUSTRALIA FOR A ONE-MAN STAGE SHOW.

s host of the ABC series *Grand Designs*, Kevin McCloud is Aknown for his gentle but pointed coaching of home builders through what is usually a troublesome experience, often admiring their gumption if not their budgeting skills. He's also shared his own adventures, as he and his mates put together an eco-friendly shed using only recycled and found material in his show Man Made Home. His architectural knowledge and enthusiasm know no bounds, nor does his determination to get us all thinking differently about the way we live.

IN KEVIN McCLOUD'S 43 PRINCIPLES OF HOME (PUBLISHED IN 2010), NUMBER 43 IS: 'SHARING IS A FUNDAMENTALLY CIVILISED FORM OF BEHAVIOUR THAT IS AT THE ROOT OF SUSTAINABLE LIVING.' CAN YOU EXPLAIN HOW THAT WORKS?

There are currently 7.5 billion of us on the planet and by 72050 there may be 10 billion, or a great deal more, and the problem is we have a finite amount of resources. So the only way we are going to make it work is if we start thinking about ways in which we can share resources so we can all

We produce a vast quantity of rubbish every year and it is all, mostly, reusable. I think, and hope, we are on the verge of a recycling and upcycling revolution.

benefit and still have enough left over for our children and the generations beyond. By getting people to share everyday resources in their communities (be it car pooling, community food gardens, shared water resources) it delivers not only sustainable objectives but also other benefits, including the psychological, social and physical wellbeing of those communities. By sharing resources we are reducing our environmental load and building a resilient community. That principle of sharing is like a secret weapon.

YOU ALSO TALK ABOUT THE OVERUSE OF THE TERM 'SUSTAINABLE', AIMING FOR 'SLOW LIVING' INSTEAD. WHAT ARE THE FUNDAMENTALS OF THAT AS OPPOSED TO 'FAST' LIVING?

I'm a big advocate of making and doing – whether that's Nrepairing a chair, or cooking, or knitting a cushion cover, anything that doesn't involve looking at a screen. These things put us in touch with a quarter of a million years of evolution. Physiologically we are not designed to sit and look at screens. We are designed to amble and walk, to collect berries, to weave clothes and make furniture, to talk and socialise, to be part of a community. When we do these things, they are incredibly satisfying and are great stress relievers. We produce a lot of serotonin when we do these things as opposed to dopamine, which is what you produce when you go shopping.

YOU ALSO ENCOURAGE REPURPOSING AND UPCYCLING MAND DO A LOT OF THAT YOURSELF, ESPECIALLY IN THE TRANSPORTABLE SHED YOU MADE IN THE SERIES MAN MADE HOME. HOW IMPORTANT DO YOU SEE THESE TWO PRACTISES?

I met a man recently who is the head of one of the biggest recycling companies in the UK. He is basically responsible for all the waste in London and is very passionate about upcycling and recycling. He showed me plastics that had been made from oil grown on algae on human sewerage from a sewerage farm. His view was very simple: in the UK – and Australia – we already have enough of everything to continue in a closed loop cycle. We can make everything we need for the future out of our own rubbish by recycling and

upcycling. We produce a vast quantity of rubbish every year and it is all, mostly, reusable. I think, and hope, we are on the verge of a recycling and upcycling revolution because the technology is already there that allows us to recycle and upcycle almost anything.

YOU HAVE STUDIED ARCHITECTURE THROUGHOUT HISTORY AND SEEN A WIDE RANGE OF BUILDING DESIGNS IN THE 20 YEARS YOU HAVE HOSTED GRAND DESIGNS, SO WHAT WOULD YOU DESCRIBE AS GOOD BUILDING DESIGN?

Every architect, not just me, will point you towards a man Ncalled Vitruvius, a Roman architect in the first century BC who said that all good buildings ought to deliver three objectives: they should be firm and sound and well built; they should also be comfortable and ergonomic to use; and they should be delightful and pleasurable. Those terms have stuck. I think in this age it's really important that we generate buildings that are really well built, comfortable and delightful, but they also have to be sustainable.

ARE THERE INNOVATIVE ECO-BUILDING MATERIALS YOU HAVE SEEN THAT ARE MAKING A DIFFERENCE? In the UK we are seeing all kinds of heating and Nventilation equipment and technologies emerging. There are new techniques and developments in insulation, concretes and low-carbon materials. But there's a word of warning here: in the UK and Australia, the government targets for environmental performance in materials and buildings have shifted away from the focus of politicians. And I mention politicians for one very important reason: if you do not have strong government policies and legislation in place that sets targets for [environmental] performance levels, then industry won't respond or deliver.

OVERSEEING THE MANY PROJECTS ON GRAND DESIGNS, WHERE HOUSES CAN BE QUITE IMMENSE USING RESOURCES ON A LARGE SCALE, DO YOU SEE ENVIRONMENTAL CONCERNS PLAYING A GREATER ROLE?

First of all, building is a slow process [laughs]. The very act // of commissioning [a build] puts people in touch with their local economy, the tangibility of resources, and many people are really shocked because they've never had that intimacy with the building process and material. There is, of course, that tremendous paradox: you use large quantities of materials. Some end up being quite upset at having not realised the total impact. They become, perhaps, a little sobered by the experience. How do I reconcile it? I ensure we try and film as many sound projects that are well thought through. Generally speaking, I really like the two- and three-bedroom houses that are pretty modest, where architects have to work really hard to design something that is functional on a budget. 🕨 For information and tickets: kevinmccloudlive.com.au



Anything but boring

ONE PRINCIPAL'S VISION TO ENHANCE HIS STUDENTS LEARNING ENVIRONMENT THROUGH GARDENING HAS EVERYONE AT THE SCHOOL SEEING GREEN. WRITES KATE NEALE.

n the North West Melbourne suburb of Sydenham, the Catholic Regional College (CRC) for senior students once suffered the same fate as many school grounds - it contained only boring, low maintenance and dreary spaces providing little imagination or innovation.

The vision of the principal Brendan Watson was to change that, to look well beyond the built environment, creating green spaces for students and staff to retreat, reflect and be inspired. The result is a garden that was presented with the Best Edible Garden Award in the 2019 Victorian Schools Garden Awards.

Growing interest

Over the last six years, nine purpose-built gardens have been created with the help and direction of students.

Among them is a garden that uses tropical and aquatic plants such as palms and water lilies, bamboo, philodendrons and native grasses. It is situated beside the beauty salon classroom, providing a sense of tranquillity and relaxation.

The jewel in the crown of the entire school, however, is arguably the one-acre kitchen garden and newly established orchard. Tended by the school's Certificate II

Top: The main one-acre kitchen garden.

Far left: Horticulture and cooking students

Left: An example of the fresh veg they produce.

Horticulture students, it abounds with beautiful organic produce and attracts plenty of attention from passersby.

Like the school grounds more broadly, the kitchen garden once struggled. The school found it difficult to secure a long-term horticulture teacher, and the students seemed disengaged with the space and their learning.

The principal finally found an enthusiastic candidate: Michael Casey, who stepped in to lead the practical side of the horticulture course. Michael, who'd previously worked at the school, was a firm believer in the therapeutic qualities of spending time in green spaces, and was keen for students to reap the benefits of time spent outdoors too. Another essential element is teamwork.

"I like coming out to the garden," says one student. "I have my own jobs and goals to do, but when they're done, I help others."

The teachers also seem happy to relinquish authority and power within the group with one reflecting, "I feel like the adults [teaching staff] are just here to help. We're all just here to garden."

Another, employed as a teacher's aide to help one student in particular, believes the flexible approach benefits her student who loves touching and smelling the plants. "Compared to his anxiety in other classes, he has agency here. He feels comfortable, and the kids look out for each other."







Another shy but deep-thinking student remarks, "The garden is like a metaphor for a better society. Plants have their own agenda, too, but they also work well with other plants. And pollinators are like having extra people to help. I have these skills here to use in social aspects [of my life]."

Plants and produce

The kitchen garden grows a variety of produce all year round, including Brussels sprouts, garlic, spinach, rainbow chard, snow peas, tomatoes, broccoli, lettuce, carrots, beans, pumpkin, kale, chillies, chives, dill, rosemary, parsley and coriander. Apricots, apples and quince also grow within the grounds of the kitchen garden, soon to be joined by bananas and avocado.

Over 100 Meyer, Eureka and Lisbon lemon, Tahitian lime and Navel orange trees have been planted in the new orchard. The students have their work cut out for them, controlling weeds and establishing irrigation.

Another development has been involving the hospitality students in the garden and putting the produce to use in the school's kitchens.

"It was quickly realised by the horticulture kids that we would have more produce than we could take home, and they were keen to understand the worth of their harvests in dollar terms," Casey explains. "So we began weighing each week's harvests and equating it to a retail dollar figure, which drew great interest among the kids. Then we offered it to the on-site training restaurant for use."

Head chef and hospitality teacher, Richard McGuire, was keen for his trainee chef students to understand the paddock-to-plate principle so jumped at the offer to use the produce.

The result is a garden often filled with apprentice chefs chatting to horticulture students about what's growing, what future harvests are possible and how to best harvest crops. Suddenly, the garden has demonstrated it's value across the school community. One recent example is how the hospitality trainees cooked a three-course dinner for the horticulture students and their families using the fresh produce.

One of the nicest and most unexpected benefits of the garden, Casey explains, has been how some of the student's friends (if they have a class break) drop in for a visit.

"They often come to just hang out, but conversations include what's happening in the garden. It's good they feel comfortable here. They are respectful and you can see my students show pride in the garden

Top: Michael Casey can see multiple benefits of the garden for the students.

Centre: The orchard keeps everyone busy. Left: Trainee chefs cook with the fresh produce.



as they explain what's growing. Why wouldn't I encourage it?" Casey says.

The garden's site within the school grounds helps lift its profile. Typically, 'ag' plots are tucked up the back of a school, providing little opportunity to walk past or visit, but at CRC it is right within the busy school thoroughfare.

Therapeutic benefits

The garden's therapeutic value is obvious. "I often see students just sitting and reflecting and I want them to have that space to do it," Casey explains.

"The garden is a place to learn, but you can't learn if you're not in the right head space. So why not give them the space to gather their thoughts? They'll come back to you when they're ready. And they do."

One student says: "The garden is an escape for me. Not from a bad place, just from the busyness. Just a place I can hide away. Home is busy. This is my chill-out zone."

You can see the students' obvious comfort in the class through their joking and how they enjoy each other's company, teachers included.

It's an approach not lost on the students' parents either. "Wednesday is definitely his favourite day," one parent says. "The garden makes him happy."

Above: Horticultural students mix with trainee chefs in the garden.

Students also love that they can put their knowledge to use immediately with a hands-on approach that connects with their other classes, such as biology.

"All our other classes are about learning for the future. But we need knowledge for now," a student says.

It's a powerful reminder that we often treat children as 'becomings' without appreciating their ability to contribute as 'beings' in the here and now.

HORTICULTURAL THERAPY

Research backs up what some of us unconsciously recognised: a person's physical, emotional and social wellbeing improves through meaningful interactions in green spaces with plants and people. It can be as simple as sitting and smelling flowers and herbs, or being involved in building and caring for gardens. Benefits include lowered anxiety, memory stimulation, improved concentration, physical wellbeing, team work and an increased connection to our community.



INSIDE JOB

WHAT GOES ON BENEATH THE LID OF YOUR HIVE CAN BE A BIT OF A MYSTERY - KELLY LEES SHEDS SOME LIGHT ON WHAT BEES GET UP TO.

ou may have wondered what honeybees do inside their hives, in the dark, away from the outside world. Fortunately, lots of study has been done about bees and what they get up to, going about the work that keeps the colony running at top speed.

Most of what's done inside the hive is carried out by the female worker bees, by far the most abundant bees in the hive. They spend the first weeks of their lives inside the hive and follow a predictable age-related task schedule. After emerging from their wax cell following 21 days of growing, the young bees have to clean up. You will see workers with their heads inside cells 'polishing' in readiness for the queen to lay a new egg.

Young workers also act as nurse bees, putting their heads in cells to feed developing larvae by regurgitating food that includes 'worker jelly' (a protein rich food, produced in the mandibular glands of the nurse bees) and bee bread (a fermented mix of pollen and honey).

These young bees can also be seen working as freight handlers, unloading the food returned to the hive by foragers. If the load is pollen, the bees will help remove the pollen from the incoming bee and pack it into waiting cells, using their heads to push it firmly into the cell. They will also unload nectar after witnessing a dance.

The tremble dance

One of the communication dances inside the hive is known as the tremble dance. A bee with a full honey gut will approach a 'house' bee and shake her abdomen from side to side vigorously, indicating nector to be unloaded. The full bee will then extend her tongue as will the house bee. In a process known as trophallaxis, the nector is completely exchanged by the bees. The exchange ensures the water content of the nectar is reduced and enzymes are added to the nectar to start its conversion into honey. This process is repeated several times until finally, you will see the end result which is a house bee head down, depositing the nectar into waiting cells to be turned into honey.

The waggle dance

The most significant communication dance on display is the waggle dance. This dance is used to describe the location of food, water and nest sites. A dancing bee will describe a figure eight like pattern. Moving up the comb on an angle she describes the angle of the sun in relation to the hive and the source. As she does this she waggles her abdomen, the vigour of the waggles is indicative of the energy needed to get there (that is,







From top: The process where honeybees exchange nectar is called trophallaxis; drones emerging from their wax cells; the queen is fed, cleaned and watered by worker bees.

the distance). So, she moves up the comb, wagging her abdomen and turns right, returning to the start of the dance. She then moves up the comb, wagging her abdomen and turns left, returning to the start again. This is the figure of eight and is one circuit.

The number of circuits she does indicates how excited she is by what she has found. During this dance other bees will follow her closely, sometimes touching to learn the dance. She may also share a taste of the nectar she has found. When the new bees return to the hive after going to the source described, their dance will be slightly different as time will have passed.

Building a comb

Bees also need to build wax comb. To do this you may see them engage in a behaviour known as 'festooning'. Bees form long dangling chains, hanging off one another. The bees at the top of the chain secrete beeswax from their wax glands located between the abdominal segments and use them to form the distinctive hexagonal cells. The bees dangling below function like a plumbob, their combined weight drawing the comb down vertically as it is built.

Other jobs you may see workers do include: feeding the drones (male bees); removing dead larvae and bees; caulking up cracks and holes with propolis (sticky resins from plants); and wrestling and chasing the small hive beetle (a pest of honeybees).

The queen

The queen bee also has observable behaviours. As she moves, workers tend to part for her. She will put her head inside cells to check if they are clean and empty, and to measure them by pushing her front legs to the cell walls to ensure she lays the right type of egg (female or male). Turning around, she inserts her long abdomen into the cell, depositing an egg at the very bottom.

As the queen moves about the hive you will see worker bees touching her repeatedly with their antennae; they are gathering her pheromone to pass around to other bees in the hive, communicating that she is alive and healthy.

The queen is cleaned, fed and watered by her retinue of workers, who incidentally also carry her faeces outside the hive.

Drones generally rest or walk about inside the hive, occasionally getting fed or helping themselves to some honey or nectar.

The behaviours of bees are endlessly fascinating and you will probably witness them do all sorts of wonderful things as you continue to explore their world through beekeeping.



NEXT ISSUE





BUSHFIRE RECOVERY

How to deal with the grief of losing a garden, home, wildlife and community, as well as how to set up your garden to reduce future damage.

GETTING STARTED WITH LEMONS

Top choices for Aussie gardeners, from Eureka to Meyer.

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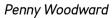
reviews



BLOOMS AND BRUSHSTROKES

Penelope Curtain & Tansy Curtain WAKEFIELD PRESS, 2019, \$65

Subtitled 'a floral history of Australian art', this glorious book celebrates and identifies the flowers in artworks by Australian artists. It's an A-Z of flowers, anemone to zinnia, with nearly 100 beautiful reproductions of paintings and photographs. It's hard to pick favourites, but two of mine are photographs. The first by Christian Thompson, a Bidjara man from Mount Tambor (Qld), titled *Purified* by Fire. The second is the cover photo, *Blinded*, by Polixeni Papapetrou. Mother and daughter authors Penelope and Tansy Curtin provide a detailed background story of the chosen flowers and comment on the part each artist has played in Australian art more generally and the relevance of each painting depicted. An important, engaging, beautiful book for lovers of gardens, nature, history and art.





GREEN

Jason Chongue HARDIE GRANT BOOKS, 2019, \$32.99

Following on from his first book *Plant Society*, which focused on indoor plants, Chongue now ventures into small outdoor gardens and spaces. With beautiful images and explanatory text, he explores plants for different climates, how to style plants to fit your spaces, and specific projects for all the corners of modern living: balconies, courtyards, entrances, hallways and public spaces. Then a general chapter on plant care and propagation and finally some useful homemade remedies for pest control. Scattered through the book are story snippets from special 'plant people' who explain what they are growing, where and why plants are important to them. Warm hearted and full of sound plant knowledge, this is a book for people without a lot of space, who want to garden anyway! See extract page 36.

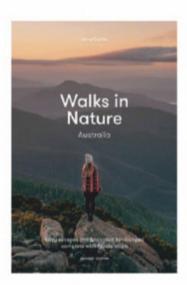
Penny Woodward



HOW TO SAVE THE WHOLE STINKIN' PLANET

Lee Constable with illustrations by James Hart PUFFIN, 2019, \$19.99

Superheroes are known for their capes and special powers that will save the world – Captain Garbology is no different, leading her 'warriors' (aka the young readers of this book) on a garbological adventure. Lee Constable, host of Network Ten's *Scope* (a science and tech show for kids aged 7-13), has created a fun character to talk a younger readership through the different ways they can 'Save the whole stinkin' planet', focusing on the simple fact that every day we generate a whole lot of stinky stuff that we can reduce and so help the environment. An easy and entertaining read, the book is filled with simple activities and DIY experiments. Mum and dad may be required to help at times, but the 'stinky, sticky and pretty gross' adventure is a fun one for the kids.



WALKS IN NATURE (2ND ED)

Anna Carlile HARDIE GRANT BOOKS, 2019, \$29.99

This is a gorgeous, concise and practical Australian walking guide with an extra twist. It was put together by Anna Carlile, founder of Viola Design, a communication and design company working on environmental and nature inspired projects. Carlile collaborated with a team of researchers from around the country, who walked the tracks and contributed to maps and background. The book covers more than 100 walking trails from inland national parks to wild offshore islands and ones close to cities, with walks (from 6–20km) suited to different fitness levels and seasons with easy-to-use maps and notes. The extra twist is a foodie stop nearby each walk. Of course, following the bushfires this summer, walkers will have to check with national parks and authorities to see if an area has been affected.

Leanne Croker

Steve Payne

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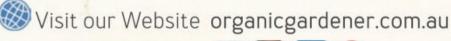
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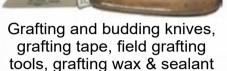


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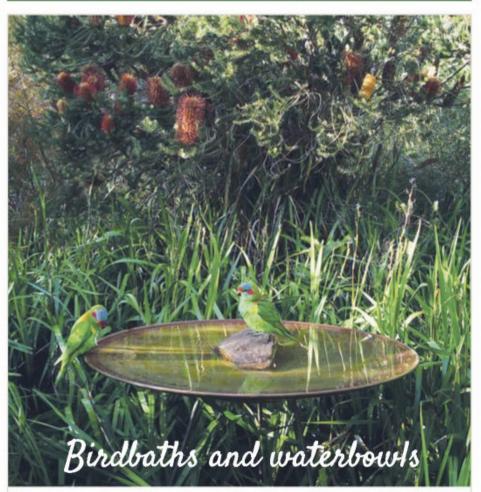




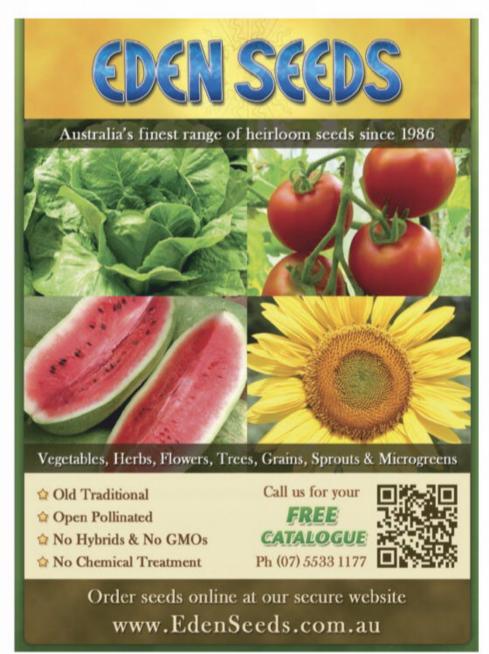
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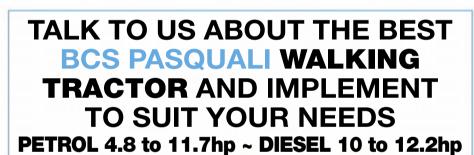
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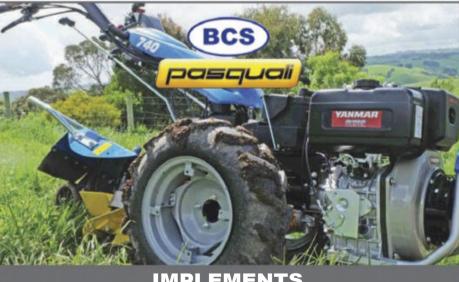


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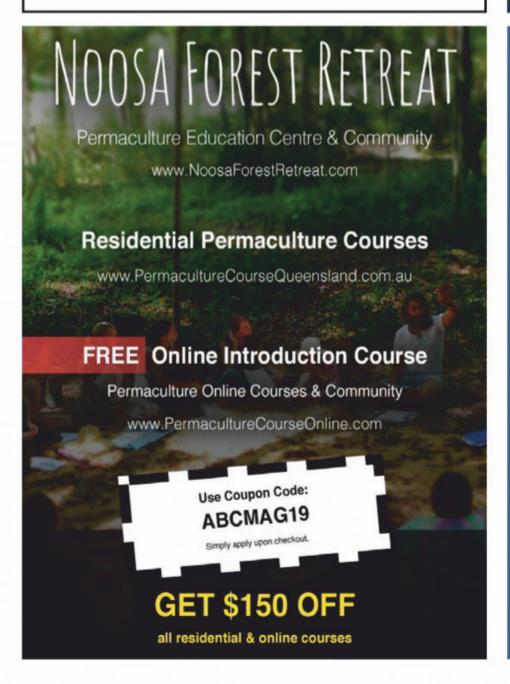
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the best of your MABC

More than just science

Natasha Mitchell is an award-winning ABC journalist, who has hosted some of ABC RN's most popular programs, including All in the Mind and Life Matters She currently presents Science Friction, which covers all things science and culture. And apparently, all species are welcome.



SCIENCE IS CLEARLY A FAVOURITE – WHY DOES IT APPEAL? It ignites my curiosity and helps me understand the world. It's such rich terrain for pointy and playful storytelling.

DOES GARDENING COME UP MUCH ON YOUR SHOW? I have a botanical story brewing at the moment. Gardening and plants, especially Australian natives, are my absolute passion and muse. Still learning, but my wicking bed is full of a mighty tomato crop. I love how gardening connects me with the soil, the seasons, and the birds in my patch. I miss when I don't have a garden in my life.

WHAT DO YOU SEE AS THE MOST IMPORTANT LESSON FROM RECENT BUSHFIRES. They've been horrendous, and many humans and animals will be rebuilding their lives (and eventually their gardens!). We have an opportunity to lead the world in preventing and mitigating to the impacts of climate change and all it will bring.

DISCOVER THE BEST OF THE ABC

Australia is back! Head to ABC on Friday nights at 7.30pm and get your fill of gardening inspo. You can also catch up on missed episodes on iview.

Check out organicgardener.com.au for blogs, gardening tips, competitions and the latest news.

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GARDENING ON YOUR LOCAL ABC RADIO

NSW

ABC RADIO SYDNEY

SATURDAY 9AM

ABC RADIO CENTRAL COAST

SATURDAY 9AM

ABC CENTRAL WEST

SATURDAY 8.30AM

ABC ILLAWARRA

SATURDAY 8.30AM

ABC MID NORTH COAST & ABC COFFS COAST

SATURDAY 9.30AM

THURSDAY 9.30AM

ABC NEWCASTLE

SATURDAY 8.30AM

ABC NEW ENGLAND

NORTH WEST

SATURDAY 8.30AM

THURSDAY 9.30AM

ABC NORTH COAST

SATURDAY 8.30AM

ABC RIVERINA

SATURDAY 8.30AM

ABC SOUTH EAST

WEDNESDAY IOAM

SATURDAY 9AM

ABC WESTERN PLAINS

THURSDAY 9.35AM, FORTNIGHTLY

SATURDAY 8.30AM

WA

ABC RADIO PERTH, ABC GREAT SOUTHERN, ABC SOUTH WEST, ABC GOLDFIELDS ESPERANCE ABC KIMBERLEY, ABC PILBARA,

ABC MIDWEST AND WHEATBELT

WEDNESDAY 2.45PM

SATURDAY 9.05AM

NT

ABC RADIO DARWIN

SATURDAY 9AM

ABC ALICE SPRINGS,

ABC KATHERINE

SATURDAY 8.30AM

QLD

ABC RADIO BRISBANE

SATURDAY 6AM

ABC SOUTHERN QUEENSLAND

SATURDAY 9AM

ABC NORTH QUEENSLAND

FRIDAY IOAM

ABC TROPICAL NORTH,
ABC CAPRICORNIA, ABC WIDE
BAY, ABC NORTH WEST QLD,

ABC WESTERN OLD

FRIDAY IOAM

ABC FAR NORTH

FRIDAY IOAM

SATURDAY 8.30AM

SA

ABC RADIO ADELAIDE, ABC NORTH & WEST, ABC EYRE PENINSULA,

ABC SOUTH EAST SA

SATURDAY 8.30AM

ABC RIVERLAND

SATURDAY 7AM

ABC BROKEN HILL

SATURDAY 9AM

STATEWIDE, ABC RADIO ADELAIDE,

ABC NORTH & WEST, ABC EYRE

PENINSULA, ABC SOUTH EAST, ABC BROKEN HILL, ABC RIVERLAND

SUNDAY IIAM

VIC

ABC RADIO MELBOURNE &

ABC VICTORIA

SATURDAY 9.30AM

ABC CENTRAL VICTORIA

THURSDAY 9.35AM

ABC GIPPSLAND

MONDAY IOAM

ABC WIMMERA

TUESDAY 9.10AM
ABC BALLARAT

WEDNESDAY 10.20AM, FORTNIGHTLY

ABC GOULBURN MURRAY

TUESDAY 9.40AM

ABC SOUTHWEST VICTORIA

1602 AM WARRNAMBOOL

94.1 FM HAMILTON

96.9 FM HORSHAM

THURSDAY, 7.35AM

ACT

ABC RADIO CANBERRA

SATURDAY 8.30AM

TAS

ABC RADIO HOBART

ABC NORTHERN TASMANIA

SATURDAY 9AM,

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balls and walks in the park comes a responsibility for disposing of your pet's poo.

Most of us want to do the right thing, but are there other options to the usual method of just putting it in the bin? Yes, bins do get rid of the problem, but they only get rid of it to somewhere else.

So what's the alternative? A worm farm, which is a great solution for pet poo as well as kitchen waste! Best of all, worm farms are an efficient, low-maintenance and reliable way to dispose of your pet poo and recycle the waste back into the environment.

and ergonomic solution to the war on pet waste, which can also be used to compost other organic matter. The worms in your worm farm will break down the pet poo and kitchen scraps, and will return these nutrients into the surrounding soil, so there's no need to harvest the organic compost. Your worm farm will process approximately 4kg of organic waste a week, so do your environment a favour and action your sustainable pet poo waste disposal today.

Visit: tumbleweed.com.au

HOW TO ENTER

SIMPLY ANSWER IN 30 WORDS OR LESS:

WHY DO YOU THINK IT'S IMPORTANT FOR GARDENS TO HAVE WORM FARMS?

ONLINE: organicgardener.com.au – click on the 'WIN/COMPETITION' tab and enter your details and response.

POST: Organic Gardener Tumbleweed Competition, nextmedia, Locked Bag 5555, St Leonards, NSW 1590

Competition is open to Australian residents only. Entry opens at midnight AEST on Thursday 6 February 2020 and closes at 11.59pm AEST on 25 March 2020. This is a game of skill and entrants must answer in 30 words or less, 'Why do you think it's important for gardens to have worm farms?' Two winners will receive a Tumbleweed Pet Poo Worm Farm worth \$372.25 each. Entries will be judged on 14 April 2020 at the promoter's premises. Full T&Cs are available at organicgardener.com.au. Delivery included in the giveaway. Remote areas can incur extra charges.

EACH WORM FARM PACK INCLUDES:

TUMBLEWER

TUMBLEWEED

- 1 x Pet Poo Worm Farm
- 1 x 2000 Tube-O-Worms
- 1 x Compost Mate to mix and aerate compost
- 1 x Worm Farm and Compost Conditioner

Samaritans strong and good

SIMON WEBSTER ENLISTS HELP WRANGLING HIS ALPACAS TO SAFETY DURING A BUSHFIRE EMERGENCY.

hen the police car raced up the drive, lights flashing, siren blaring, I assumed they'd come to get me. What the charges would be, I wasn't sure. There were so many possibilities. Impersonating a farmer... cruelty to seedlings... illegal deforestation of an orchard, by neglect...

But before I could decide whether to break for the border on the ride-on mower, or turn around and point the finger at Mrs Plot, the police officer spoke. Turned out he didn't want to arrest me after all; he wanted us to leave, pronto. The bushfire was code red and heading our way. It was time to evacuate, he said.

Of course, he couldn't force us to go. If we were prepared – mentally, physically and logistically – we could stay and defend our property, and all the years of labour and love and memories that were tied up in it. I knew my rights. We had a choice.

"Shut the gate behind you!" I shouted, as I hit the accelerator, leaving him in a cloud of dust.

We managed to get the dog on the way out (easy enough) and the cat (dragged from a patch of lantana by a feline-loving junior Plot), but we had to leave the alpacas behind. I'd filled their troughs, put out some hay, and opened gates so they could wander the property at will, but over the next 48 hours, as we bunkered down at a friend's house, we did wonder about them.

So when we heard that some good Samaritans were evacuating animals from the fire zone in their horse float, and the local showground was offering

free stabling, I went back to get them.

I don't know if you've ever tried to get seven alpacas into a horse float (or just seen something similar on Australia's

> Funniest Home Videos) but it can be quite a performance. Good job we had two strong men (OK, one

strong man and me) on hand. Together, we would wrestle

and pick up an alpaca one at the head and one at the tail, like a pantomime donkey – and then haul it into the float, where a strong woman would keep it contained while we'd stagger back to grab another. It took time. And sweat. And

cursing. But finally, we got the last one

in, and someone quickly grabbed the tailgate/ramp, and flipped it up to close the float.

Unfortunately, I still had one foot on the ramp at this point, so they also flipped me up. Time stood still, as I floated, weightless, for a moment or an eternity, before landing head first in a pile of alpaca stable poop.

Oh, how we laughed.

Anyhow, a few days later, the fire danger having receded and the house still standing, we'd moved back home and it was time to get the alpacas from the showground and bring them back. I called the good Samaritans. The strong woman came. But no strong man. There would be no wrestling, or lifting. But there would be a good life lesson learnt.

We used food, and were calm, and patient, and the alpacas walked into the float of their own accord. Maybe they knew they were coming home.











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