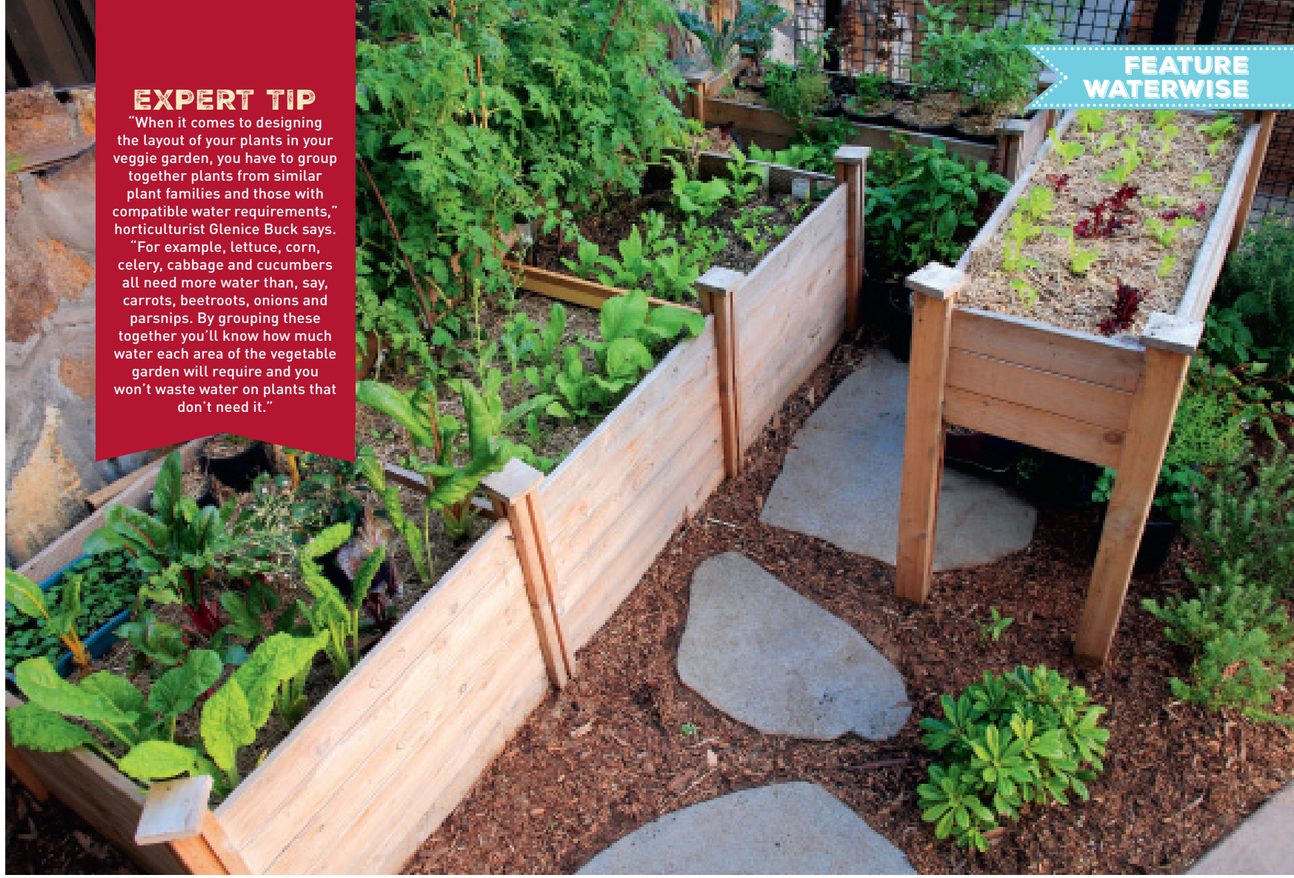


EXPERT TIP

"When it comes to designing the layout of your plants in your veggie garden, you have to group together plants from similar plant families and those with compatible water requirements," horticulturist Glenice Buck says. "For example, lettuce, corn, celery, cabbage and cucumbers all need more water than, say, carrots, beetroots, onions and parsnips. By grouping these together you'll know how much water each area of the vegetable garden will require and you won't waste water on plants that don't need it."

WASTE NOT, WANT NOT

Edible plants tend to be thirsty, but it is possible to grow healthy, flavoursome veggies without over-taxing your water supply

WORDS: KAREN BOOTH

There's no way around it. Vegetable gardens are water guzzlers, especially in the early stages when young plants are working hard to become established. Even after that, edible plants need lots of water, not to mention sun, which has a tendency to cause water to evaporate! That doesn't mean, however, that you can't use your water wisely — even conserve water — when growing veggies.

"Whether your veggie garden is in-ground or above ground, it's all about getting the basics right," says Steve Warner, landscape designer and director of OUTHOUSE design. "The best way to have a waterwise veggie patch is by ensuring your plants have all they need to thrive, so they don't have to rely solely on the water you give them.

"Hardy plants become hardy because they're gaining support from multiple sources, such as the nutrients, microbes and minerals in the soil," Steve adds, "so you need to create a complete package of support services, which includes water, if you want a healthy and productive veggie patch. Let's face it, you wouldn't build a house on bad foundations, so set up your veggie patch for success with the right soil foundation."

Glenice Buck, horticulturist and founder of Glenice Buck Designs, agrees good soil prep is key. "You need to ensure the soil has a high level of organic matter prior to planting out your vegetables. Vegetables need to draw on the organic matter to form their crops; also, a high level of organic matter will ensure that the soil has a good water-holding capacity."

Having ensured the soil is nutrient- and mineral-rich, friable and well-draining, yet still able to retain moisture, you need to add a layer of mulch. "This will help reduce the water evaporation from the soil and it'll help keep the soil insulated on the hottest days, which means overall the garden beds will require less water. Mulch also has the added benefit of reducing the amount of weed growth, which is good because weeds compete for water."

All seedlings require more water than mature plants, so you need to water them regularly and

OPPOSITE PAGE When you have a veggie garden as extensive as this one, employing water-smart strategies is vital. **ABOVE** Whether growing veggies on a grand or small scale, you can still be waterwise. *outhousedesign.com.au* **LEFT** Before planting seedlings, you need to enrich your soil with organic matter such as compost. **BELOW** Rhubarb needs constant watering and likes moist soil, so it may not be ideal if the water supply is patchy.

MULCH IT GOOD

Once your plants are in the ground, or in a raised garden bed or planter, add a layer of organic mulch. This will reduce evaporation by as much as 70 per cent, allowing most of the water to make its way down to the roots where it's needed — even on the sunniest day. The other benefits are it helps to keep the soil temperature more even, retards the growth of weeds (which compete with your edible plants for water) and, if you choose the right organic mulch (such as pea straw or lucerne), when it breaks down it adds nutrients to the soil.

The best time to lay down your mulch is after rain or following a thorough watering of the soil. Keep it loose or it'll act as a barrier to water penetration, and don't bank it up around the stems of plants. When it comes to how much, don't go overboard. If you pile the mulch on too thickly it will prevent water from getting through to the soil, so a layer that's 50mm to 75mm is more than sufficient. Just keep on eye on it and replenish when it breaks down.

ABOVE LEFT No veggies are truly drought-tolerant, but the hardy artichoke comes close as it can do well with less. **ABOVE** A layer of organic mulch helps to keep the soil cool, minimise water evaporation and retard weed growth.

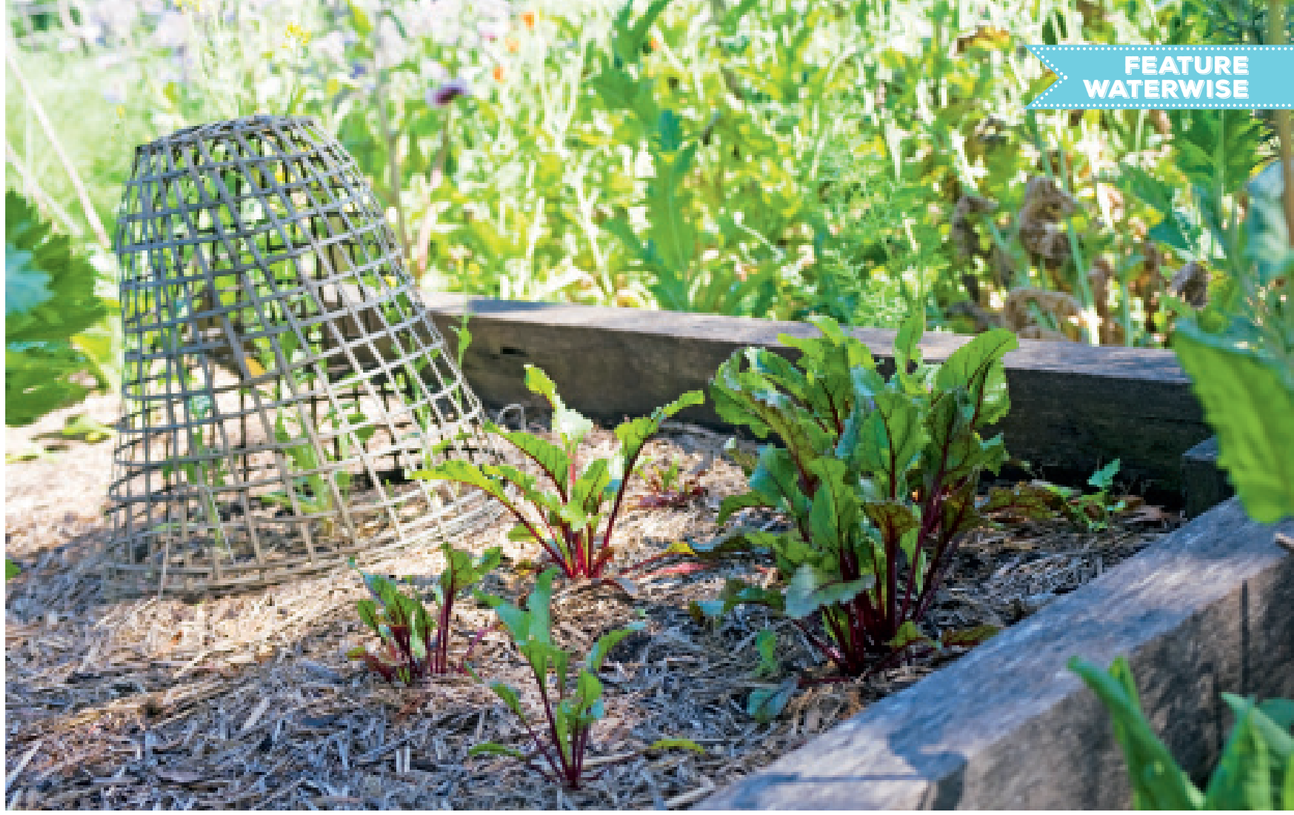
thoroughly. Once established, the plants still need regular, deep watering but not as frequently — perhaps two or three times a week (more during very hot weather, less if you get some solid rain). Also, look into the individual water requirements of the plants you intend to grow. Veggies such as broccoli, celery, cabbage and asparagus will need an ample supply of water, as will naturally shallow-rooted edibles such as sweet corn and lettuce. Others, such as beans, need less.

"If you live in an area of low rainfall or one that's prone to long, dry summers, look around your local area and see what's growing well," Steve says. "Talking veggies is a great reason to say hello to the neighbours. Once you make friends, you open the way to sharing seeds and cuttings, and let's face it, if that seed or cutting came from a plant that was thriving, it's already hardened to local growing conditions so no reason why it won't do just as well for you.

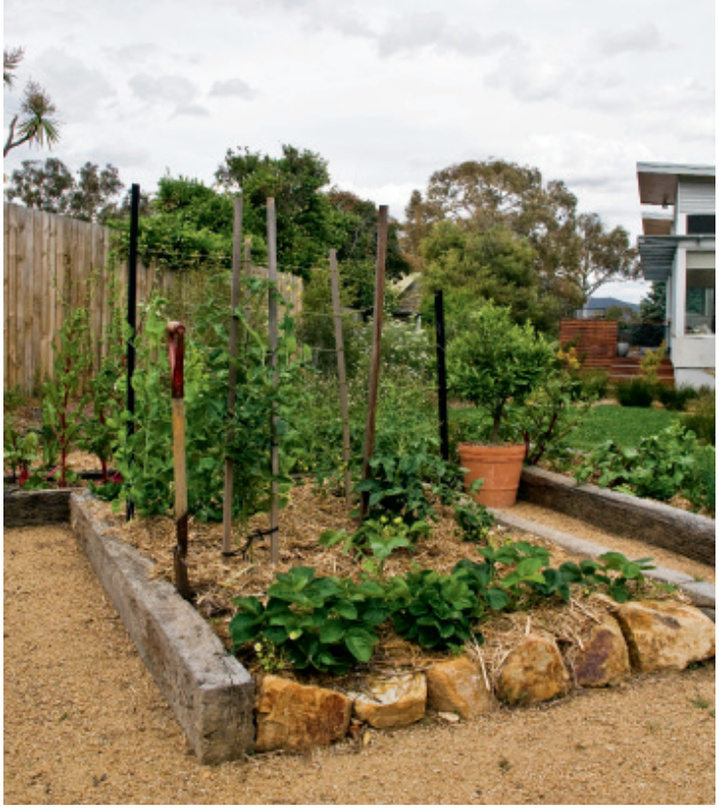
"Also look for naturally hardy veggies if you have an unreliable water supply," Steve advises. "There really aren't many veggies you could outright call drought-tolerant but there are some, such as the artichoke and New Zealand spinach, which can fare well with significantly less water than others. And don't forget the Mediterranean herbs such as oregano, thyme, sage and rosemary, which do fall into the drought-tolerant category."

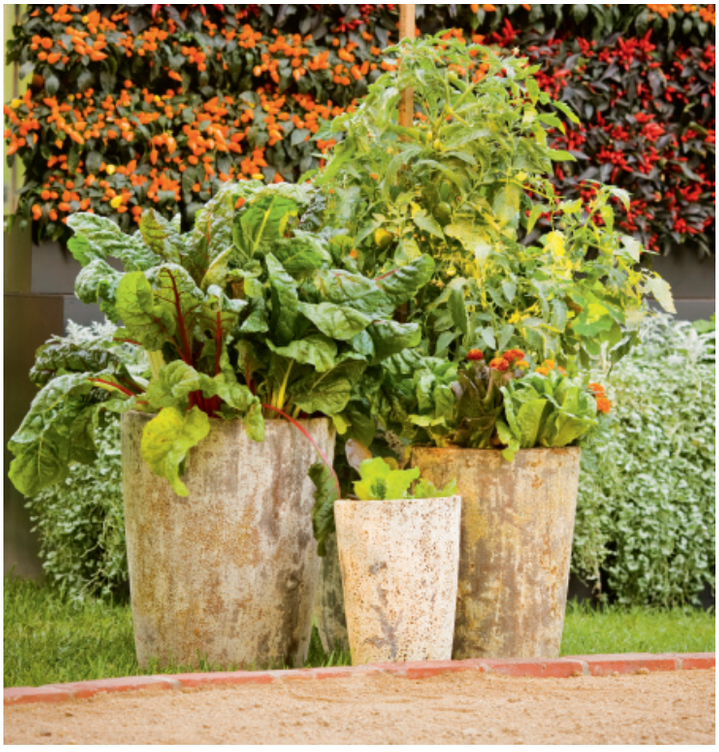
"Most vegetables will benefit from longer, less frequent watering rather than frequent short bursts of watering," Glenice says. "The deep watering allows the moisture to soak down to the lower layers of the soil. This encourages the plants to develop a deeper root system. The result is stronger plants that can cope with temperature extremes more readily and plants, once they're established, that need less water.

"Try to water your plants in the early morning so that the rate of evaporation is lower than it would be in the middle of the day," she adds. "By watering at this time you'll also give the moisture left on any of the leaves enough time to dry so that it's not left sitting on the plants, which could attract disease."



TOP Seedlings and young plants of all types will need more water until they become well established. **ABOVE** If you don't have enough water for veggies, many herbs are waterwise, especially the Mediterranean ones. **LEFT** Lettuce requires lots of water but allowing the leaves to remain wet wastes water and can lead to disease. **RIGHT** Serious produce gardeners keep a supply of organic mulch to replenish layers as they break down.





RESTORING LIFE

If you want to ensure optimum water penetration and retention, not to mention plant growth, you need soil that's teaming with life, not chemicals. "Lifeless soil means plants struggle to grow. Often, no matter how much you water and fertilise the garden, it just won't come good. We can blame the weather but the real reason why the soil is dry is because it's lifeless and that's down to our own gardening practices," says Colin Johnson of Earthlife.

"Chemical fertilisers are toxic to the life in the soil, synthetic wetting agents can lock up moisture (which means plants have to work harder to access the water), while composting organic matter without biology can contribute to the creation of a lifeless, hydrophobic environment." Colin recommends the use of environmentally friendly, microbial rock mineral products to restore life to the soil. These break up compacted soil, make it healthier and increase moisture retention so you don't have to water your veggie beds so often.

TOP To ensure you don't waste water, group together those edible plants that have similar water requirements. **ABOVE** If you don't have much water to spare and you just want to dabble in kitchen gardening, try a few pots. **TOP RIGHT** Well-composted, nutrient-rich soil allows water to penetrate more deeply and it retains moisture longer.

While deep regular watering is important to build solid root structure, you also need to ensure your watering supports the specific needs of individual plants, Steve explains. "To make this easier, plant your veggies in groups/families that all like the same amount of water and soil conditions. It's getting the basics like these right that helps you use water wisely — and just makes life easier.

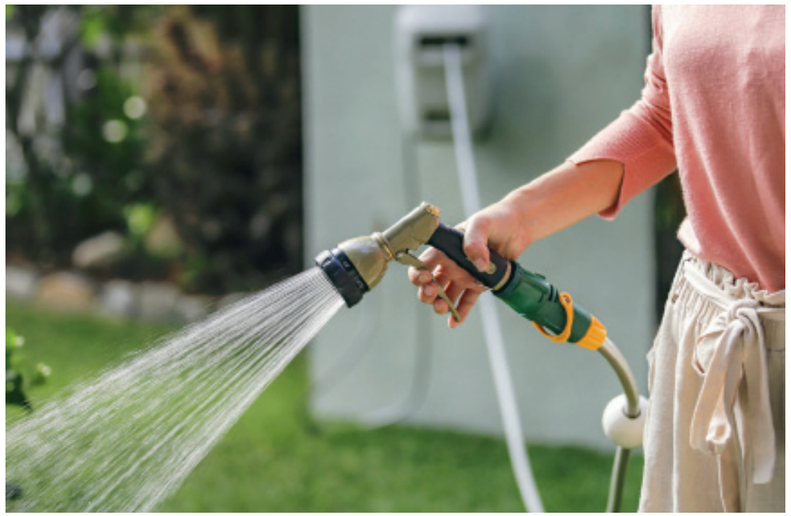
"Some people like to water by hand as they feel it helps them keep in closer touch with the condition of the plants, but one of the major reasons we lose our veggies is because we either over- or under-water them," he continues. "You need to keep an eye on soil moisture levels and stick to a routine. But if you're time-poor and want to ensure an even distribution of water, drip irrigation is a good idea."

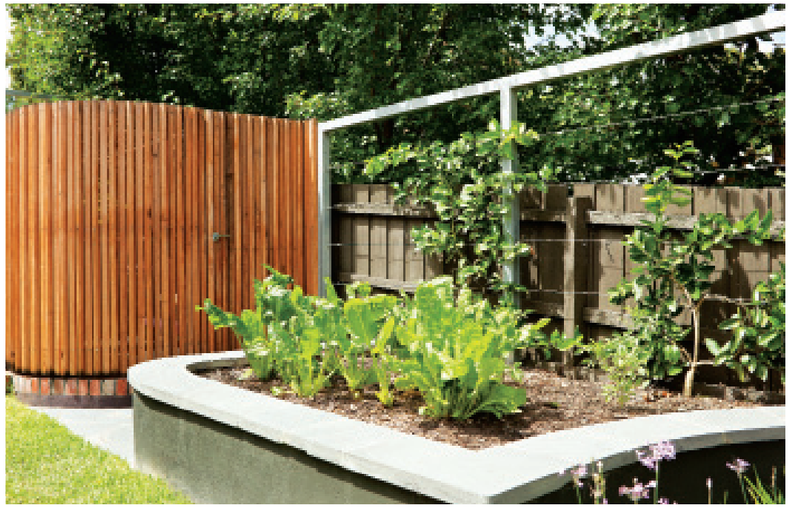
A drip-irrigation system is the most time- and resource-efficient way to water your veggie beds. It means you don't have to worry about water wasted due to overspray or undue amounts being lost through evaporation. This is because the distribution is more targeted and the water soaks (drips) straight into the soil where it does its work, protected by a layer of sun-repelling mulch.

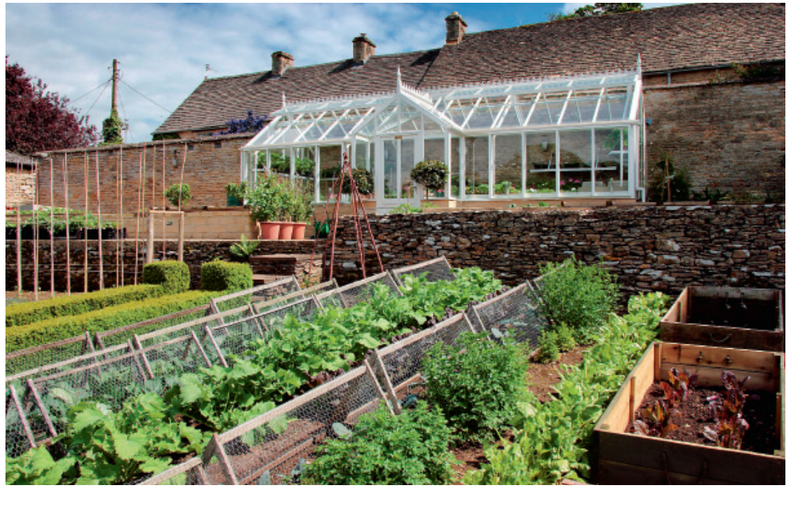
Some people prefer a dripline system — piping with holes placed at specific intervals along its length. You lay this out in lines or a grid pattern across your veggie bed.

Still others favour the drip-emitter system. In this case, drippers are connected to the pipe/tubing and positioned next to the plants. Some drippers even allow you to adjust the flow rate, so your thirstier edibles can get a little extra without the others getting too much.

If you're planning to set up a number of veggie beds and you're serious about being a water-conscious kitchen gardener, it's best to get the advice of an irrigation specialist.







WATERING BY HAND

Hand-watering your veggie beds or planters can have the advantage of allowing you to observe how your plants are faring on a regular basis (as opposed to an irrigation system that you can set and forget), but it can also lead to significant water wastage and uneven watering. If using a hand-held hose, it needs to have a trigger spray that automatically shuts off when you release your grip. This is a requirement of water supply authorities.

To prevent wasting too much water, don't water when it's windy and concentrate the flow of water on the soil rather than the leaves of the plants. Water left on leaves will evaporate on a hot day (which is a waste) but in cooler weather, if the leaves are too wet too often, it can lead to diseases such as powdery mildew on zucchinis and pumpkins and grey mould on lettuce.

You also need to ensure you apply the water evenly, steadily and deeply, otherwise some parts of the bed will get just a sprinkling, preventing the water reaching down to the roots where it's needed. Planters and pots will need more frequent watering than in-the-ground veggie patches but before turning on the tap, make sure the soil is dry — watering unnecessarily is a big waste of a precious resource.

ABOVE If you have a hose, the Water Wise Starter Kit supplies you with all the fittings you need, including a spray gun. *hoselink.com.au* **LEFT** Start out with a small veggie patch and refine your watering regime before expanding operations. *boldsimplicity.com.au* **BELOW** Whether you grow veggies in the ground, in planters or a glasshouse, you can be water-smart. *griffinglasshouses.com*

Drip-irrigation systems need to be suited to your specific needs and properly installed. They also require various accessories, such as a filter at the end where the system attaches to the tap or, for a dripline system, a pressure-reducing valve (because the water will come out of the tap at a pressure that's too high for the dripline to handle). These are all required if the drip-irrigation system is to function safely and efficiently.

Being a water-smart veggie gardener is also about how you source the water you need, not just how much you use. That's why a rainwater tank's a great idea. "No matter how waterwise you are, veggie gardens will require a larger amount of water compared to a xeriscape type garden, so another consideration is to try and collect as much rainwater as possible," Glenice suggests. "This could save you the cost of buying water in dry times and connecting water tanks to the gutters of your house and any freestanding buildings on your property is a great way to increase your self-sufficiency."

If you're building a new home, you can have a large underground tank installed, which makes it unobtrusive. If not, there are tanks

ABOVE Growing veggies in wicking beds will save up to 80 per cent of the water you would normally use. **LEFT** Replenishing the water reservoir in a wicking veggie bed. This need only be done every few weeks.

of all shapes and sizes for installation next to your home, garage or shed. In addition to being close to a roof, the tank needs to be near a power point (to operate the pump) and a gutter with a downpipe.

You can attach an irrigation system to your tank but you need to install a filter to separate the debris that can accumulate and potentially cause a blockage in irrigation pipes or drippers. Tank capacity will depend on your needs and the space you have to accommodate it. A size of at least 5000 litres would provide for much of your irrigation needs but bigger would make harvested water available for other purposes, too. The best idea is to ask your tank supplier about the right size and set-up for your needs.

A lesser-known but age-old way of growing edibles more water efficiently is to use wicking beds and it's one Glenice recommends. "A wicking bed is a raised garden bed with a water reservoir below the level of the soil. Water is drawn up from the reservoir to the soil above via capillary or wicking action," she explains. "Due to this upwards draw there's a large reduction in the amount of water leaching out of the soil or draining through the soil bed.

"If the idea appeals," she adds, "you can make your own wicking bed." Indeed you can! Just pop along to page 56 and you'll see exactly how — too easy!